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DEPARTMENT OF HEALTH

Fourteenth Annual Report

OF THE

Department of Health

Ontario, Canada

FOR THE YEAR

1938

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO

Printed and Published by T. E. Bowman, Printer to the King's Most Excellent Majesty
1939



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SESSIONAL PAPER No. 14, 1939



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TO THE HONOURABLE ALBERT MATTHEWS, LL.D.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I herewith beg to present for your consideration the Fourteenth Annual Report of the Department of Health, for the year 1938.

Respectfully submitted,

HAROLD J. KIRBY,

Minister of Health.

TO THE HONOURABLE HAROLD J. KIRBY, K.C.,
Minister of Health.

SIR,—I have the honour to submit for your approval the Fourteenth Annual Report of the Department of Health, made in conformity with and under the provisions of The Public Health Act, for the year 1938.

I have the honour to be, Sir,

Your obedient servant,

B. T. MCGHIE,
Deputy Minister of Health.

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DEPARTMENT OF HEALTH

Minister

HONOURABLE HAROLD J. KIRBY, K.C.

Deputy Minister

B. T. McGHIE, M.D.

Chief Medical Officer of Health

JOHN T. PHAIR, M.B., D.P.H.

Solicitor's Branch

K. G. Gray, M.D., K.C.....Solicitor to the Department

Child Hygiene and Public Health Nursing

John T. Phair, M.B., D.P.H.....Director
Edna L. Moore, Reg. N.....Chief Public Health Nurse
Miss N. E. Howey.....Supervisor, Public Health Nursing
Miss H. G. Pennock.....Supervisor, Public Health Nursing
Miss E. M. Squires.....Supervisor, Public Health Nursing
Miss B. E. Johnson.....Supervisor, Public Health Nursing
Miss M. V. Lowry.....Supervisor, Public Health Nursing
Eastern Ontario Health Unit, Alexandria, Ontario
Miss Rose Hally.....Public Health Nurse
Miss Ora H. Lefler.....Public Health Nurse
Miss M. H. Lunn.....Public Health Nurse
Miss K. E. Osborne.....Public Health Nurse
Miss E. R. Wheler.....Public Health Nurse
Miss Henedine Bechard.....Public Health Nurse
Miss Ola M. Dancause.....Public Health Nurse
Miss M. A. Rutherford.....Public Health Nurse
Miss H. E. Smith.....Public Health Nurse

Preventable Diseases Branch

A. L. McKay, B.A., M.B., D.P.H.....Director and Epidemiologist
R. P. Hardman, M.D., D.P.H.....Associate Epidemiologist

Tuberculosis Prevention Branch

G. C. Brink, M.B.....Director
K. M. Shorey, M.D.....Clinical Specialist
G. W. Cragg, M.B.....Clinical Specialist
J. S. Hazen, M.B.....Clinical Specialist
J. W. Smith, M.D.....North Western Ontario Clinic, Fort William
G. G. Brearley, M.D.....Mid-Eastern Ontario Clinic, Belleville
D. McCallum, M.B.....Eastern Ontario Clinic, Ottawa
G. M. Lane, M.D.....Northern Ontario Clinic, Timmins
E. R. Harris, M.B., {
H. H. Washburn, M.D. }.....Mid-Northern Ontario Clinic, North Bay

Sanitary Engineering Branch

A. E. Berry, M.A.Sc., C.E., Ph.D.....	Director
A. V. Delaporte, B.A.Sc., Chem. E., F.C.I.C.....	Chemist in Charge of Experimental Station
O. V. Ball, B.A.Sc.....	Assistant Sanitary Engineer
G. A. H. Burn, B.A.Sc.....	Assistant Sanitary Engineer
E. W. Johnston, B.A.Sc.....	Assistant Sanitary Engineer
A. T. Byram, B.A.Sc.....	Assistant Sanitary Engineer
G. M. Galimbert, B.A.Sc.....	Assistant Sanitary Engineer
W. R. Edmonds, M.A.Sc.....	Assistant Sanitary Engineer
L. A. Kay, M.A.Sc.....	Assistant Sanitary Engineer
J. G. Duncan, B.A.Sc.	Assistant Chemist
H. G. Tyler, A.R.San.I., C.S.I.(C).....	Sanitary Investigator

Laboratories Branch

Andrew MacNabb, V.S., B.V.Sc.....	Director
Wallace McClure, M.B., D.P.H.....	Bacteriologist
A. R. Bonham, B.A.Sc., F.C.I.C.....	Provincial Analyst
H. A. Ansley, M.D., D.P.H.....	Pathologist
J. W. Bell, M.B.....	Assistant Bacteriologist
Stuart F. Penny, M.D.....	Pathologist
W. M. Wilson, M.D.....	Pathologist
Doris Howell, M.A., M.D.....	Junior Physician
J. E. Fasken, B.A.Sc.....	Assistant Analyst
R. S. Bull, M.A., A.C.I.C.....	Assistant Analyst

Branch Laboratories

A. J. Slack, Ph.C., M.D., D.P.H., Director.....	London
James Miller, M.D., D.Sc., F.R.C.P. (E) F.R.C.P. (Can.) F.R.S.C., Director.....	Kingston
A. E. Allin, M.B., D.P.H., Director.....	Fort William
N. F. W. Graham, B.A., M.D., Director.....	Sault Ste. Marie
A. D. McClure, B.A., Director.....	North Bay
C. B. Waite, M.B., Director.....	Peterborough
F. L. Letts, M.B., D.P.H., Director.....	Ottawa

Industrial Hygiene Branch

J. G. Cunningham, B.A., M.B., D.P.H.....	Director
A. R. Riddell, B.A., M.B., D.P.H.....	Clinical Specialist
F. M. R. Bulmer, M.B., B.Sc., Med.....	Special Research
H. E. Rothwell, B.A., Sc., F.C.I.C.....	Chemist
C. M. Jephcott, M.A., Ph.D.....	Assistant Chemist
L. B. Leppard, M.A., Ph.D.	Physicist
E. O. Braaten, M.A., Ph.D.....	Physicist
D. McKee.....	Chief Sanitary Inspector
J. Richardson, Sanitary Inspector.....	North Bay
John Sime, A.R. San. I	Fort William
R. B. McCauley, Sanitary Inspector.....	Sault Ste. Marie
Hugh McIntyre, A.R. San. I	Kirkland Lake
A. S. O'Hara, M.R. San. I., C.S.I.(C), A.M.I.S.E.....	Kenora
Sydney Harris, Sanitary Inspector.....	Geraldton

Nurse Registration Branch

A. M. Munn, Reg. N.....	Director
E. R. Dick, Reg. N.....	Inspector of Training Schools for Nurses
E. A. Rothery, Reg. N.....	Inspector of Nursing, Provincial Hospitals

Dental Services Branch

F. A. Kohli, D.D.S.....Director

Health Education

Mary Power, B.A.....Director

Medical Statistics

A. Hardisty Sellers, B.A., M.D., D.P.H. Medical Statistician

Library

Fredrita Henley Wright.....Librarian

Honourary Consultants

Public Health Administration.....J. G. Fitzgerald, M.D., F.R.S.C.
Pediatrics.....Alan Brown, B.A., M.B.
Obstetrics.....William B. Hendry, M.B., D.S.O.
Dental Services.....Harold Keith Box, D.D.S.
Pathology.....James Miller, M.D., D.Sc., F.R.C.P. (E), F.R.C.P. (Can.), F.R.S.C.
Public Health Nursing.....Miss Elizabeth Smellie, C.B.E., Reg. N.

ANNUAL REPORT

of the

Department of Health

For the Calendar Year Ending December 31st, 1938

Comment is justified in this preface to the annual report of departmental activities on the rather radical departure from previous practice in two specific instances, namely, the assumption by the province of the entire cost of the necessary sanatorium treatment of the medically-indigent tuberculous patient, and the adoption of legislation requiring the compulsory pasteurization of milk in all cities, towns and certain defined areas.

The first of these measures was prompted by the difficulty which presented in ensuring appropriate treatment for many of those suffering from this disease. The second was the result of an appreciation of the necessity for a more uniform protection of the public milk supply. The unanimity with which the Legislature accepted this mandatory measure is a tribute to the vision of the Assembly membership. The legislation has been extended to include all urban municipalities with a population of 1,000 or over and all those suburban areas adjacent to the larger centres of population. The adoption for the first time by any state or province of progressive legislation of this type is a further index of official concern for the public good.

The Department was relieved of the cost of arsenicals to be used in the treatment of those suffering from syphilis; these drugs being supplied by the Federal Department of Pensions and National Health. The proportion of the cost of venereal disease treatment in non-clinic centres, formerly borne by the Government, has been increased to the point where only 25 per cent. of the cost is paid for by the municipality concerned. Increased emphasis has been placed on the control of this disease.

The report of the various activities of the Department follows in some detail.

REPORT OF THE SOLICITOR

K. G. GRAY, M.D., K.C., *Solicitor to the Department.*

The legal opinions required from the Solicitor continue to increase, partly due to the enactment of new legislation administered by the Department. More than 2,500 requests of this nature were received and answered during the year.

The Solicitor acted for the Superintendent of the Ontario Hospital, London, in connection with two actions in the Supreme Court. Both actions were dismissed against the defendant Superintendent.

The Solicitor acted as guardian *ad litem* for a defendant patient in an Ontario Hospital.

It was necessary to obtain judgment in county court against four creditors for maintenance owing to this Department on account of patients in Ontario Hospitals.

Only one application for habeas corpus was brought during the year for patients in Ontario Hospitals. This application is still pending.

The Solicitor acted as a member of the Board of Examiners appointed under The Optometry Act, during the year.

The following legislation was passed by the Legislative Assembly in the 1938 Session, affecting statutes administered by this Department:

1. *An Act for the Investigation of Remedies for Cancer, 1938, c.4.*
and amendements to the following Acts:

1. *The Burial of the War Veterans Act, 1938, c.3.*
2. *The Mental Hospitals Act, 1938, c.20.*
3. *The Nurses' Registration Act, 1938, c.25.*
4. *The Private Hospitals Act, 1938, c.28.*
5. *The Private Sanitaria Act, 1938, c.29.*
6. *The Public Health Act, 1938, c.30.*
7. *The Sanatoria for Consumptives Act, 1938, c.34.*
8. *The Cemetery Act.*
The Public Hospitals Act.
The Venereal Diseases Prevention Act.

contained in The Statute Law Amendment Act, 1938, c.35.

The following regulations and amendements to regulations were approved by the Lieutenant-Governor in Council on the recommendation of the Minister of Health:

Regulations and amendements under the following Acts:

- The Cemetery Act*, Order-in-Council, dated May 28th, 1938.
The Mental Hospitals Act, October 13th, 1938.
The Nurses' Registration Act, February 14th, 1938.

The Nurses' Registration Act, May 28th, 1938.

The Nurses' Registration Act, November 30th, 1938.

The Pharmacy Act, January 6th, 1938.

The Pharmacy Act, October 13th, 1938.

The Private Hospitals Act, January 6th, 1938.

The Private Hospitals Act, August 18th, 1938.

The Public Health Act, May 10th, 1938.

The Public Health Act, August 18th, 1938.

The Public Health Act, December 16th, 1938.

The Public Health Act, December 28th, 1938.

The Public Hospitals Act, May 10th, 1938.

The Public Hospitals Act, November 30th, 1938.

The Sanatoria for Consumptives Act, June 22nd, 1938.

The Sanatoria for Consumptives Act, August 18th, 1938.

Two Orders-in-Council were approved on June 24th, making pasteurization of milk compulsory in certain localities in Ontario. These are reported in the report of the Division of Sanitary Engineering, in this volume.

An Order-in-Council was approved on June 24th proclaiming Saturday, October the 1st, 1938, as the day upon which sec. 8 of The Public Health Amendment Act, 1938, should come into force and effect.

An Order-in-Council was approved on December 16th proclaiming February 1st, 1939, as the date on which pasteurization of milk should be made applicable to certain areas.

An Order-in-Council was approved on June 22nd, proclaiming Friday, the 1st day of July, 1938, as the day upon which sec. 12 of the "Act to Amend The Sanatoria for Consumptives Act," should come into force and take effect.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 28th day of May, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that pursuant to the provision of Part IV of *The Cemetery Act*, the attached rules and regulations, schedule of charges and form of application for cremation, be approved.

Certified.

C. F. BULMER,
Clerk, Executive Council.

THE TRUSTEES OF THE TORONTO GENERAL BURYING GROUNDS

THE TORONTO CREMATORIUM SCHEDULE OF CHARGES:

For a Cremation, including the use of the Chapel, Cremation, and the placing of the cremated remains in a sealed temporary container and delivery at the Crematorium. Container may be left at the Crematorium for fourteen days free of charge.

Adult.....	\$ 40.00
Child.....	25.00
For a temporary deposit of the container at the Crematorium after fourteen days— per month.....	1.00
Scattering cremated remains.....	5.00
For Statutory Declaration required when remains are shipped abroad.....	3.00
Metal container for cremated remains when shipped abroad.....	1.50
Packing, postage and extra work when shipping remains.....	3.50
Lease of Niche in the Columbarium in the Toronto Crematorium for a period of 25 years—Standard.....	100.00

Special.....	225.00
For the second and subsequent rental periods the charges are one-third of the above.	
Lettering on the face of Niche in the Columbarium in the Toronto Crematorium— per letter.....	.25
For a Niche in the Columbarium in Mount Pleasant Mausoleum—Standard.....	160.00
Special.....	340.00
Lettering on the face of Niche in the Columbarium in Mount Pleasant Mausoleum— per letter.....	.30
Re-opening and sealing Niche for second or subsequent inurnment.....	7.00
For a lot in the Garden of Rest at Toronto Necropolis—including the opening charges for the first interment.	25.00
Interment of cremated remains in private ground or lot or for the second or subsequent interment in the Garden of Rest.	6.00

RULES AND REGULATIONS, TORONTO CREMATORIUM

Open for inspection by appointment.

1. Before incineration can take place, the approved form "Application for Cremation" with Statutory Declaration and Coroner's Certificate, properly filled out, together with burial permit, must be delivered to the Crematorium Office, 200 Winchester Street, Toronto, following reservation by letter, telegram or telephone, reservation to be confirmed by Crematorium.

2. Cremated remains will be placed in a sealed temporary container, which will be furnished, without additional charge, by the Trustees, and such container may be left at the Crematorium for a period of 14 days after cremation. After that date a charge of \$1.00 per month will be made, and on failure to pay such charge the cremated remains may be disposed of in such manner as the Trustees may think fit.

3. No cremation shall take place until the charges are paid.

4. The fee for cremation includes use of Chapel, cremation, supplying of container, and delivery of cremated remains at Crematorium.

5. When cremated remains are to be sent out of town, an extra charge will be made for packing, postage and extra work involved.

6. When shipping cremated remains abroad, a Statutory Declaration is necessary for which a fee is charged.

7. No cremation will take place on Sunday, Good Friday or Christmas Day except when the Local Board of Health orders that the body shall be cremated forthwith.

8. Floral tributes will not be received in the Crematorium building, but provision will be made for their display on the adjoining grounds. After the third day, they will be destroyed.

9. Children under the age of twelve years shall not be admitted to the Crematorium Chapel, except in charge of an adult, who shall be responsible for their good conduct.

10. All the general Rules and Regulations of the Trustees of the Toronto General Burying Grounds shall apply to the Crematorium so far as the nature of the case permits.

RULES AND REGULATIONS, COLUMBARIUM AND GARDEN OF REST.

Special provision has been made for the care of incinerated remains; full particulars can be obtained on application to the Secretary, Supervisor or Superintendent at the Crematorium.

1. Niches may be rented in the Columbarium adjoining the Crematorium Chapel.

2. Niches for permanent inurnment may be purchased in the Columbarium in Mount Pleasant Mausoleum.

3. The charge for the interment of ashes in private graves or in the Garden of Rest shall be the same as those from time to time fixed for opening infants' graves.

4. Lettering on the face of Niches must be approved by the Trustees and will be done by them at prices from time to time fixed by them.

5. Urns will only be allowed in the Columbarium when they are properly sealed and when the design, material and inscription have been approved by the Trustees.

APPLICATION FOR CREMATION.
With Statutory Declaration
and Coroner's Certificate.

THE TRUSTEES OF THE
TORONTO GENERAL BURYING GROUNDS

THE TORONTO CREMATORIUM

200 WINCHESTER STREET, TORONTO.

Telephone MIDway 7911

I,.....
(Name of Applicant)

Address.....

Occupation.....

Apply to THE TORONTO CREMATORIUM

to undertake the cremation of the remains of.....
(Name of Deceased)

Address.....

Occupation..... Age..... Sex.....
(Whether married, widow, widower or unmarried)

Place of Birth..... Where Died?.....

I authorize the following disposal of the cremated remains.....

.....

.....

.....

I do solemnly declare that the true answers to the questions set out below are as follows:

1. Are you an executor of the
deceased?

2. If not, state

(a) Did the deceased (a)
leave a will?

(b) Your relationship to (b)
the deceased.

(c) Are you the nearest (c)
surviving relative of
the deceased?

(d) The reason why the (d)
application is made
by you and not by an
executor or any near-
er relative.

3. Did the deceased leave
any written directions as to the
mode of disposal of his re-
mains? If so, what?

4. Have the near relatives
of the deceased been informed
of the proposed cremation?

(The term "near relative" as here
used includes widow or widower,
parents, children above the age of 16,
and other relatives usually residing
with the deceased.)

5. Has any near relative of
the deceased expressed any
objection to the proposed cre-
mation? If so, on what
grounds?

6. What was the date and
and hour of the death of the
deceased?

7. What was the place where deceased died? Give address and say whether own residence, lodgings, hotel, hospital nursing home, &c.

8. Give the name and address of the ordinary medical attendant of the deceased.

And I make this solemn declaration, conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of The Canada Evidence Act.

Declared before me at the.....of

 this.....day of.....19.....

 (A Commissioner, etc.)

Date and hour of Cremation Service.

Funeral Director.

Address.

Cremation Charge \$..... Columbarium Niche \$..... Urn \$.....

Burial Fee \$..... Extra Work \$..... Total \$.....

NOTE:—Caskets or Containers must be of Wood or other Combustible Material.

CORONER'S CERTIFICATE

I certify that I have to-day viewed the body of.....

and from the history given by:

I am satisfied that the cause of death was:

and that no circumstances exist which could render necessary any further examination of the remains or of any part of the body or any analysis of any matter or substance connected therewith or contained therein.

Dated at.....this.....day
 of the month of.....19.....

Coroner.

Municipality.

Section 52, Chapter 351, Revised Statutes of Ontario, 1937.

No body shall be cremated unless and until a certificate in the prescribed form, signed by a duly qualified coroner of the municipality in which death took place has been deposited with the owner, which certificate shall contain the statement that the cause of death has been definitely ascertained and that there exists no reason for further inquiry or examination.

Copy of an Order-in-Council, approved by the Honourable the Lieutenant-Governor, dated the 28th day of December, A.D., 1938.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the attached regulations made pursuant to clause (zd) of Section 5 of *The Public Health Act, R.S.O. 1937*, Chapter 299, be approved.

Certified,

C. F. BULMER,

Clerk Executive Council.

BEDDING REGULATIONS

1. In these regulations:—

- (a) “Bolster,” “cushion,” “feather bed” or “Pillow” shall include any bag, case or covering made of cotton, leather or other textile material, and stuffed, filled or partly filled with excelsior, straw, hay, grass, corn husks, moss, fibre, cotton, wool, hair, jute, feathers, feather down, kapok or other soft materials to be used on a bed, hammock, chair, couch, divan, sofa, lounge, or other articles of upholstered furniture for sleeping, reclining or resting purposes.
- (b) “Comforter” shall include any cover, quilt, or quilted article made of cotton or other textile material and stuffed, filled or partly filled with fibre, cotton, wool, hair, jute, feathers, feather down, kapok, or other soft materials.
- (c) “Converted” as applied to any material shall mean any otherwise new material which has been dyed or coloured or which has been garnetted or shredded but not further manufactured than to be spun into yarn or knit or woven into fabric and subsequently cut up, torn up, broken up or ground up and shall include coarse cotton mill gunny.
- (d) “Label” shall mean a label required to be affixed to any article under the provisions of these regulations.
- (e) “Mattress” shall include any quilted pad, mattress, mattress pad, mattress protector, bunk, quilt or box spring, stuffed, filled or partly filled with excelsior, straw, hay, grass, corn-husks, moss, fibre, cotton, wool, hair, jute, kapok or other soft material, to be used on a couch or other bed for sleeping or reclining purposes.
- (f) “New” as applied to any material or articles shall mean any material or article which has not been previously manufactured or used for any purpose but shall not include converted material.
- (g) “Second-hand” as applied to any material or article shall mean any material or article which is neither new nor converted.
- (h) “Upholstered furniture” shall mean upholstered furniture that is,—
 - (i) provided with removable or semi-detached cushions or bolsters; or
 - (ii) of such a size and nature that it can be used for resting, reclining or sleeping purposes.

2. Every person who constructs, manufactures, builds, puts together, or renovates any mattress, pillow, bolster, cushion, feather bed, comforter or upholstered furniture shall affix a label thereto in accordance with these regulations.

3.—(1) No person shall at wholesale or retail or otherwise directly or indirectly sell, offer or expose for sale, deliver, rent, consign, lease or otherwise commercially dispose of or have in his possession with intent to so dispose of it, any mattress, pillow, bolster, cushion, feather bed, comforter, or upholstered furniture unless such article is labelled according to these regulations.

(2) Sub-regulation (1) shall not apply to any person who is not a manufacturer, retailer, second-hand dealer or in any way engaged in the manufacture, sale, delivery, rental or renovating of articles enumerated therein.

4.—(1) Every mattress, bolster, feather bed and every article of upholstered furniture shall be labelled with a label approved by the Department, made of muslin or linen, not less than six square inches sewn by all four sides to a conspicuous part of each article.

(2) The label shall be lettered in English and shall give the following information,—

(a) The names and address of the manufacturer; and

(b) (i) Where new materials are used exclusively the article shall be labelled, “contains new material only” on a white label;

(ii) Where "converted" materials are used exclusively or with new material the article shall be labelled "contains converted material" on a blue label; and

(iii) Where "second-hand" materials are used in part or in whole the article shall be labelled "contains second-hand material" on a yellow label.

(3) The designations, "contains new material only," "contains converted material" and "contains second-hand material" shall be printed on labels in black letters at least $\frac{1}{4}$ " in height and other lettering shall be $\frac{1}{8}$ " in height and no trade name or other printing shall appear on the label.

(4) The provisions of this regulation shall apply to pillows, cushions and comforters except that the label may be sewn by only one side to the article.

5.—(1) No person shall remove, deface or alter or attempt to remove, deface or alter any label or use any label in any manner other than in accordance with the provisions of these regulations.

(2) Sub-regulation (1) shall not apply to any person who is not a manufacturer, retailer, second-hand dealer or in any way engaged in the manufacture, sale or renovating of articles enumerated in these regulations.

6. Any officer of the Department of Health or any local medical officer of health or sanitary inspector may require any second-hand upholstered furniture to be disinfected to the satisfaction of such officer.

7. No unclean or vermin-infested material shall be used for the manufacture of any mattress, pillow, bolster, cushion, feather bed, comforter or upholstered furniture, and no person shall sell, offer or expose for sale, or have in his possession with intent to sell any such article containing unclean or vermin-infested material.

8. No mattress, pillow, bolster, cushion, feather bed or comforter from any institution caring for the sick shall be sold or renovated unless sterilized by a process approved by an officer of the Department or a medical officer of health, or treated to his satisfaction.

9. No mattress, pillow, bolster, cushion, or feather bed which has been in contact with a person suffering from any communicable disease shall be sold or renovated unless sterilized by a process approved by an officer of the Department or a medical officer of health, or treated to his satisfaction.

10.—(1) All feathers or feather products whether new or second-hand shall be thoroughly washed, rinsed, steamed and dried by methods approved by an officer of the Department or a medical officer of health, before being used in any mattress, pillow, bolster, cushion, feather bed, comforter or upholstered furniture.

(2) Any approval by a medical officer of health under this regulation shall be subject to cancellation or revision by an officer of the Department.

11. Where any officer of the Department or any medical officer of health suspects that any mattress, pillow, bolster, cushion, feather bed, comforter or article of upholstered furniture is not labelled in accordance with the provisions of these regulations he may prohibit the sale of such article by affixing a label thereto bearing the words "off sale" and no such article shall be sold or offered for sale until such label has been removed by an officer of the Department or a medical officer of health.

12. Every building or place where mattresses, pillows, bolsters, cushions, feather beds, comforters or upholstered furniture are made, remade, renovated or where such articles are sold and every conveyance upon which such articles are transported, shall be subject to inspection and any such articles in such a place or upon such a conveyance may be opened and examined and seized and held for examination by an officer of the Department or a medical officer of health, and every such officer or medical officer of health may cut or deface any article to such an extent as is necessary to examine it.

13. These regulations shall come into force on the 28th day of December, 1938, but shall not apply to any retail sale prior to March 1st, 1939.

Copy of an Order-in-Council approved by the Honourable, the Lieutenant-Governor, dated the 10th day of May, A.D., 1938.

Upon the recommendation of the Honourable, the Minister of Health, the Committee of Council advise that pursuant to the provisions of clause (v) of section 5 of *The Public Health Act* the attached regulations for dental inspection in schools be approved.

Certified,

C. F. BULMER,

Clerk Executive Council.

REGULATIONS FOR DENTAL INSPECTION IN SCHOOLS

Pursuant to clause (v) of section 5 of *The Public Health Act*.

1. In these regulations:—

“Dental inspection” shall include dental treatment;

“Department” shall mean Department of Health of Ontario;

“Director” shall mean the Director of Dental Service for Ontario.;

“Local Board” shall mean a local board of health;

“School Board” shall mean and include any board having under the authority of statute charge over a public, separate, continuation, high or vocational school.

2. Subject to these regulations the Department may pay a grant to any local board which provides by agreement under section 91 of *The Public Health Act* with a school board for the dental inspection of the pupils of the school or schools under the charge of such school board.

3. (1) The grant shall be paid only to local boards which have established dental inspection after April 1st, 1938; unless the Department is satisfied that the services included in such dental inspection have been materially increased after April 1st, 1938;

(2) The grant shall be paid for a period of not more than five years after the commencement of such inspection.

4. Any local board desirous of obtaining the grant for dental inspection shall apply to the Director in writing signed by the secretary of the local board and

(a) shall file a copy of an agreement between the local board and the school board pursuant to section 91 of *The Public Health Act*;

(b) shall set out in the application the particulars relating to the dental inspection, including the number, size and location of the schools, the names and addresses of all dentists, nurses and other persons who will be engaged, and the length of time each person will be actually employed and the amount of their remuneration, the number and location of dental clinics which will be provided, the quarters, accommodation and equipment for each clinic.

5. The local board shall provide as part of the dental inspection,—

(a) Such full-time or part-time services of dentists as the Director deems necessary;

(b) A public health nurse whose duties shall be to assist in the dental work in the clinics and to carry out the necessary follow-up work in the schools and in the homes of the pupils, unless other arrangements for such work are approved by the Director;

(c) quarters and accommodation for dental clinics satisfactory to the Director;

6. The remuneration paid by the local board to any dentist, dental nurse or other person employed in the dental inspection provided under these regulations shall be subject to the approval of the Director.

7. (1) The local board of a municipality having a population of more than 20,000 persons shall provide the equipment and supplies for the dental clinics;
(2) The local board of a municipality having a population of less than 20,000 persons may arrange with the dentists engaged in the inspection to provide the necessary supplies and equipment for the dental clinics.
8. Every dentist employed in any dental inspection under these regulations shall prepare a report each month showing the pupils to whom any dental service is given, the nature of such service and the length of time in which the dentist is engaged therein and shall send a copy of such report to,—
 - (a) The local board which is providing the dental inspection;
 - (b) The school board which has entered into an agreement with the local board;
 - (c) The Director.
9. (1) The Director shall notify the secretary of the local board when the application for the payment of a grant from the Department has been approved and the grant shall be payable every three months thereafter, for a period not exceeding five years or until the Director has notified the secretary of the local board that such board is no longer eligible for the payment of the grant.
(2) The grant shall be paid to the local board upon receipt by the Director of a requisition signed by the secretary of the local board showing the total cost of providing the dental inspection for the preceding three months, and in such requisition the secretary of the local board shall include in the statement of cost only any amounts actually paid by the local board to any dentist, the cost of dental supplies and the cost of equipment.
(3) In calculating the amount shown for the cost of equipment, the secretary of the local board shall include in each three monthly statement, 1/10th of the total cost of such equipment.
(4) The secretary of the local board shall keep in his custody records showing all receipts and disbursements of moneys made for the purpose of dental inspection, and the records shall be subject to inspection by the Director or any person authorized by the Director to audit the records.
10. The amount of the grant paid by the Department to a local board for dental inspection shall be as follows:
 - (a) To a local board having jurisdiction in a municipality with a population exceeding 5,000 persons, the grant shall be 20% of the cost of the dental inspection;
 - (b) To a local board having jurisdiction in a municipality with a population of from 1,000 to 5,000 persons, the grant shall be 30% of the cost of the dental inspection;
 - (c) To a local board having jurisdiction in any township, the grant shall be 30% of the cost of dental inspection, and in the event that more than one township may unite for the purpose of establishing dental inspection, in such cases the grant shall be 30% of the cost of dental inspection;
 - (d) To a local board having jurisdiction in a municipality with a population of less than 1,000 persons, the grant shall be 30% of the cost of dental inspection: provided that the grant to any local board shall not exceed in any year the sum of \$1,000.
11. (1) The Department may pay a grant to any school board which provides and pays for dental inspection of pupils, but only where provision for such dental inspection was inaugurated by such school board prior to the 31st day of July, 1924.
(2) The Department will pay a grant to a school board only when the Department is satisfied that the services included in such dental inspection have been materially increased after April 1st, 1938.

(3) Regulations numbered 1 to 10 shall apply *mutatis mutandis* to any school board which applies for and receives any such grant.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 13th day of October, A.D., 1938.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to the provisions of section 5 of *The Mental Hospitals Act, R.S.O. 1937*, Chap. 392, the Regulations under the said Act be amended by adding thereto the following:

23. During the illness or absence of the superintendent of any institution, the Minister may appoint an officer of the Department or any institution to be acting superintendent of the institution, and while acting as acting superintendent such officer shall have all the powers and be subject to all the duties of a superintendent under the said Act and these regulations.

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 14th day of February, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the regulations with respect to Training Schools for Nurses, approved by Your Honour on the 10th day of December, 1936, be amended as follows:

Clause (c) of section 21 of the said regulations is repealed and the following substituted therefor:

(c) After July 1st, 1939, the completion of middle school standing in twelve papers as follows (as prescribed by the Department of Education),—

Six Required Papers:

English Literature,
English Composition,
One subject of Mathematics,
Physics or Agriculture No. 1,
Chemistry or Agriculture No. 2,
Canadian History.

Six Papers Optional:

Languages—not more than four papers in two subjects:
Latin—Literature, Composition,
French—Literature, Composition,
Spanish—Literature, Composition,
Greek—Literature, Composition,
German—Literature, Composition.

Household Science No. 1 and No. 11.

Geometry,

Ancient History,

Arithmetic (special).

Zoology (special).

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 28th day of May, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the attached regulation under *The Nurses' Registration Act*, be approved.

Certified,

C. F. BULMER,

Clerk, Executive Council.

REGULATION PURSUANT TO THE NURSES' REGISTRATION ACT.

Nurses registered by examination or as "Intermediate" nurses on the General Part of the Register of the General Nursing Council for England and Wales shall be accepted for registration by the Director of Nurses' Registration for Ontario, and, further, application for "existing" nurses shall be considered on their respective merits; provided that:

- (a) The general educational standard of the applicant can be evaluated as corresponding to the general educational standards required in Ontario;
- (b) The applicants who have not had a course in obstetrics equivalent to the undergraduate course given in Ontario will be required to take a post-graduate course in obstetrics acceptable to the Director before registration.

NOTE:—A General Hospital is defined as one which admits men, women and children, and gives instruction in the four main services—medical, surgical, gynaecological and children's diseases.

Such general training may be given in one General Hospital recognized as a complete training school, or in recognized affiliated or associated hospital which together give instruction in the above named services.

This regulation shall not come into force until a certificate is received by the Clerk of the Executive Council of Ontario certifying:

That the General Nursing Council for England and Wales agrees to accept for registration by reciprocity:

- (1) Nurses registered by the Director of Nurses' Registration for Ontario after having completed a period of not less than three years' training in a General Hospital in Ontario;
- (2) Nurses training in England and Wales in a General Hospital approved by the General Council for England and Wales and registered by the Director of Nurses' Registration for Ontario.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 30th day of November, A.D. 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the Order-in-Council approved by Your Honour on the 28th day of May, 1938, pursuant to *The Nurses' Registration Act*, shall come into force. The certificate mentioned in the said Order is attached hereto.

Certified,

C. F. BULMER,

Clerk, Executive Council.

THE GENERAL NURSING COUNCIL FOR ENGLAND AND WALES.

23 Portland Place,

London, W. I,

22nd July, 1938.

DEAR MISS MUNN:—

With reference to previous correspondence in regard to the establishment of reciprocal registration between the General Nursing Council for England and Wales and the Director of Nurses' Registration for Ontario, I have pleasure in informing you that at the meeting of Council today the following Resolution was passed:—

"That the General Nursing Council for England and Wales agrees to accept for Registration by Reciprocity:—

1. Nurses registered by the Director of Nurses' Registration for Ontario after having completed a period of not less than three years' training in a General Hospital in Ontario;
- (2) Nurses trained in England and Wales in a General Hospital approved by the General Nursing Council for England and Wales and registered by the Director of Nurses' Registration for Ontario;

on the understanding that nurses registered by Examination or as "Intermediate" Nurses on the General Part of the Register of the General Nursing Council for England and Wales will be accepted for registration by the Director of Nurses' Registration for Ontario and, further, that applications from "Existing" Nurses will be considered on their respective merits; provided that:

- (a) The general educational standard of the applicant can be evaluated as corresponding to the general educational standards required in Ontario;
- (b) That applicants who have not had a course in obstetrics equivalent to the undergraduate course given in Ontario will be required to take a post-graduate course in obstetrics acceptable to the Director before registration."

NOTE:—A General Hospital is defined as one which admits men, women and children, and gives instruction in the four main Services—Medical, Surgical Gynaecological and Children's diseases.

Such general training may be given on one general hospital recognized as a Complete Training School, or in recognized affiliated or associated hospitals which together give instruction in the above-named services.

In accordance with the usual practice, official notification of the passing of the Resolution for reciprocal registration with Ontario will be forwarded through the Ministry of Health and the Dominions Office.

The Agreement will not be put into operation in this country until ratification of the terms of the Resolution has been received from Ontario.

I enclose herewith copy of a letter in regard to training in private hospitals which has been sent to all of His Majesty's Dominions with which reciprocity has been established.

Yours faithfully,

(Signed), G. E. DAVIS,
Registrar.

Miss A. Munn, Reg. N.,
Director, Nurse Registration Branch,
Department of Health, Toronto.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 14th day of February, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the regulations with respect to Training Schools for Nurses, approved by Your Honour on the 10th day of December, 1936, be amended as follows:—

Clause (c) of section 21 of the said regulations is repealed and the following substituted therefor:

- (c) After July 1st, 1939, the completion of middle school standing in twelve papers as follows (as prescribed by the Department of Education):

Six Required Papers:

English Literature,
English Composition,
One subject of Mathematics,
Physics or Agriculture No. 1,
Chemistry or Agriculture No. 2,
Canadian History.

Six Papers Optional:

Languages—not more than four papers in two subjects:

Latin—Literature, Composition,

French—Literature, Composition,

Spanish—Literature, Composition,

Greek—Literature, Composition,

German—Literature, Composition.

Household Science No. 1 and No. 11.

Geometry.

Ancient History,

Arithmetic (special).

Zoology (special).

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 6th day of January, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that pursuant to the provisions of subsection 2 of section 32a of *The Pharmacy Act*, schedule D of the said Act be amended by adding thereto the following articles:

Sulphanilamide, para amino benzene sulphonamide or any derivative thereof or any combination thereof with other substances, and whether sold under the proper name or under any trade name, mark or designation.

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 13th day of October, A.D., 1938.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that Schedule D of *The Pharmacy Act, R.S.O. 1937*, chapter 228, be amended by striking out the second paragraph of the said Schedule, which reads as follows:

Amidopyrine and barbituric acid (*malonylurea*) and derivatives or combinations of either of them with other substances whether sold separately or combined with other substances and whether sold under their proper name or under any trade name, mark or designation.

and substituting therefor the following:

Amidopyrine and barbituric acid (*malonylurea*) and derivatives or chemical combinations, except when combined with other medicinal ingredients and not exceeding one-half of one grain of amidopyrine or barbituric acid or the said derivatives or combinations and not less than the amount set by the British Pharmacopoeia as a maximum dose of one of the other medicinal ingredients in each maximum dose of the combination and when the combination contains less than one-half of one grain of amidopyrine or barbituric acid or the said derivatives or combinations in a maximum dose of the combination the minimum dose of such ingredient may be reduced in proportion to the reduction in the above drug.

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 18th day of August, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the regulations under The *Private Hospitals Act* approved by Order-in-Council, dated July 7, 1936, and amended by Order-in-Council, dated June 6, 1938, be further amended by adding thereto the following section:

28. No person to whom a license is issued for the purpose of operating a rest home shall employ the word "hospital" in its name, letterhead, or advertising, or in any written or oral reference to the rest home.

Certified,

C. F. BULMER,

Clerk, Executive Council.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 6th day of January, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the attached amendments to the regulations under *The Private Hospitals Act* be approved.

Certified,

C. F. BULMER,

Clerk, Executive Council.

REST HOMES

23. The license issued to a private hospital may provide that such hospital shall be a rest home and any hospital licensed as a rest home shall be subject to the provisions of these regulations respecting rest homes.

24. Clauses, 3, 5, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, and 22 of these regulations shall not apply to rest homes, but the remaining clauses of these regulations shall apply to rest homes.

25. (1) Any hospital licensed as a rest home shall not admit as a patient therein any person requiring surgical treatment or active medical care, or any maternity cases.

(2) Any patient in a rest home who requires any surgical or maternity care shall be transferred to an institution qualified to provide such care.

26. Any patient in a rest home who requires any medical care shall be under the active care of a duly qualified medical practitioner.

27. Notwithstanding the provisions of clause 6 of these regulations, the Inspector may exempt any rest home from employing graduate nurses.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 18th day of August, A.D., 1938:

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the attached regulations made by the Minister of Health, pursuant to Section 127 of *The Public Health Act*, respecting camps, works and premises and the employers and workmen thereof in Territorial Districts without municipal organization, be approved, and that the regulations approved by Your Honour on April 17th, 1934, pursuant to Section 119 of *The Public Health Act*, be repealed.

Certified,

C. F. BULMER,

Clerk, Executive Council.

REGULATIONS RESPECTING CAMPS, WORKS AND PREMISES AND THE
EMPLOYERS AND WORKMEN THEREOF IN TERRITORIAL DISTRICTS
WITHOUT MUNICIPAL ORGANIZATION

Pursuant to Section 127 of *The Public Health Act*.

INTERPRETATION

1. In these regulations—

“Camp” shall mean any camp, works or other premises established to house workmen employed in any lumbering, mining or other work or occupation, and shall include a standard camp;

“Contract physician” shall mean a legally qualified medical practitioner who has entered into a medical contract or a sanitation contract with an employer.;

“Employer” shall mean an employer of labour in lumbering camps, mining camps, on railway construction works and other works where labour is employed;

“Inspector” shall mean a provincial sanitary inspector appointed under *The Public Health Act*;

“Medical contract” shall mean a contract entered into under these regulations between an employer and a contract physician for the medical and surgical care and treatment of the workmen of such employer;

“Sanitation contract” shall mean a contract entered into under these regulations between an employer and a contract physician for the sanitary control over and inspection of a standard camp;

“Standard camp” shall mean a camp in which more than fifteen workmen, exclusive of one foreman and one clerk, are usually housed;

“Unorganized district” shall mean those parts of the territorial districts which are without municipal organization;

“Workmen” shall mean persons including foremen and clerks in the employ of an employer in a camp.

APPLICATION OF REGULATIONS

2. These regulations shall apply and have force in every unorganized district.

DUTY OF MANAGER, AGENT, ETC.

3. It shall be the duty of every employer and every person acting on behalf of an employer as a superintendent, manager, agent, or in other supervisory capacity in charge of any camp to observe, perform and carry out these regulations and to cause these regulations to be observed, performed and carried out.

REGULATIONS TO BE ON FILE

4. A copy of these regulations shall be obtained from the inspector and kept on file in every standard camp and shall be open to inspection by every workman employed therein.

ORDERS AND DIRECTIONS BY INSPECTOR

5. (1) For the due observance, performance and enforcement of these regulations and to ensure that the proper sanitary conditions shall prevail in camps and that the health of workmen employed therein shall be safeguarded and to prevent nuisances arising or communicable diseases being spread in the unorganized districts, an inspector may make such orders and give such directions as may appear to him to be necessary and it shall be the duty of every person for the time being in charge of any camp, forthwith to comply with the terms of any such order or direction.

(2) The inspector shall send a copy of any such order or direction to the employer.

(3) The employer of any person for the time being in charge of any camp who fails to comply with any such order or direction, after notice has been given by the inspector to such person and the employer, shall be guilty of an offence and subject to the penalties set out in regulation 39.

(4) Where the inspector is satisfied that an employer or person for the time being in charge of a camp has failed or neglected to carry out any order or direction of the inspector after reasonable notice thereof, the inspector may, by an order directed to and served upon the person for the time being in charge of the camp, require that such camp be closed and that no further operations shall be carried out in such camp until the order or direction has been complied with to the satisfaction of the inspector.

SANITATION REGULATIONS APPLICABLE TO ALL CAMPS

6. An inspector may declare any camp which is not a standard camp (within the meaning of these regulations) to be a standard camp for the purpose of these regulations.

7. Every camp shall be located and established with due regard to sanitation and health, and no camp shall be located within 100 feet of any lake, stream or other water except with the written consent of an inspector.

8. Stables or buildings housing animals, attached to any camp, shall not be located less than 150 feet from any other camp building used to house workmen, or for the storage, preparation of consumption of food, or from any water supply, and shall be so located that there shall be no drainage therefrom to any water supply.

9. Manure, garbage, and refuse of every camp shall be kept, until disposed of, in a sanitary manner and as an inspector may approve, and shall be collected and conveyed to a suitable place and there buried or otherwise disposed of to the satisfaction of an inspector.

10. Every camp and all buildings, tents, structures and other erections therein shall be located, established, constructed, altered and maintained to the satisfaction and approval of an inspector.

SANITATION REGULATIONS APPLICABLE TO STANDARD CAMPS

NOTE:—Suggested plans showing the arrangement of camp buildings, details of construction and location of equipment which are intended to meet the requirements for the safeguarding of health, are appended.

11. Unless an inspector otherwise orders, a standard camp, in which the usual or expected period of employment of the workmen is in the case of mining operations for less than six months and in the case of other operations for less than four months, shall not be subject to regulations numbered 12 to 15.

12. Any person who establishes, re-establishes or re-opens a standard camp in an unorganized district, shall, before commencing operations at such a camp, notify an inspector in writing of the:

- (a) Location, nature and accommodation of the camp;
- (b) means of access thereto;
- (c) Nature, extent and expected duration of the operations to be conducted at or from the camp;
- (d) The layout of the camp, including a plan showing the location of the water supply and sewage disposal in relation to the buildings to be erected;
- (e) Name, occupation and address of the person to be in charge of the camp and the scope of his authority;
- (f) Medical and sanitation contracts to be entered into;
- (g) Hospital facilities available to the workmen at the camp;
- (h) The estimated number of workmen to be housed in the camp, and the number to be employed but not housed at the camp;
- (i) Name and address of employer to whom communications by an inspector or the Department shall be sent.

13. Every person in charge of a standard camp shall notify an inspector in writing of any of the particulars required under the preceding regulations forthwith after the occurrence of such change.

14. Every person in charge of a standard camp shall within thirty days of its establishment, re-establishment, re-opening or closing notify the inspector in writing of the fact.

15. Every standard camp shall comply with the following specifications:

- (a) CONSTRUCTION MATERIAL.—Shall be constructed of logs or lumber or other weather-proof materials.
- (b) ROOFS AND FLOORS.—Shall be constructed of lumber, tightly fitted, unless an inspector specially permits poles to be used. The floor shall be at least one foot above the ground, which shall be properly drained.
- (c) WALLS.—Where logs are used the outer walls shall be properly chinked so as to render them weatherproof. The interior surface of the logs shall be peeled. If lumber is used the walls shall be weatherproofed with suitable material. The walls shall be at least eight feet high above the floor level.
- (d) WINDOWS.—There shall be one square foot of window area for every twenty square feet of floor area. All windows shall be constructed so that they may be opened or closed at all times. Roof windows shall not be located over bunks.
- (e) VENTILATION.—Every bunkhouse in a camp shall contain at least 300 cubic feet of air space for each occupant thereof, and the number of occupants in any bunkhouse shall be deemed to be the number for whom sleeping accommodation has been provided. In addition to windows there shall be in each bunkhouse a separate ventilating system consisting of one fresh air duct not less than 10" by 6" inside measurement to each stove. (Fig. No. 5). Ventilator outlets shall be located in the roof sufficient to provide three square inches of sectional area per occupant.
- (f) BUNKS AND BEDDING.—Bunks shall be separate either single or double-deck and so arranged that on at least one side of each there shall be a passage not less than eighteen inches wide and on the other side a space not less than eight inches wide. Clean ticks or mattresses in good condition and clean blankets shall be supplied in sufficient quantity and maintained in a clean and sanitary condition.
- (g) WHITE-WASHING.—The interior of every camp or camp building shall be treated with a coat of lime-wash or other suitable material at the time of re-establishment or re-opening before it is re-occupied, or as required by an inspector.
- (h) COOK'S QUARTERS.—Separate quarters shall be provided for the cook and his staff. If partitioned off from the cookery a door shall be hung at the entrance to the cook's quarters.
- (i) STORAGE.—A room for storing perishable foodstuffs shall be provided, and a door shall be hung at its entrance. Food shall be protected from flies at all times.
- (j) LAUNDRY AND WASHING.—Suitable washroom, bath and laundry and drying accommodation shall be provided to the satisfaction of the inspector either in a portion of the bunkhouse partitioned off or in an adjoining or separate building. Facilities for heating water shall be provided.
- (k) DRAINAGE.—Drainage from all sinks, wash basins and tubs shall be conveyed to a cesspool located at least twenty feet from the nearest dwelling and located so as to avoid drainage toward any source of water supply. (Fig. No. 7.)
- (l) PRIVIES.—There shall be provided privies adequate for the simultaneous accommodation of ten per cent. of workmen employed. Privies shall be located so as not to contaminate the water supply. They shall not be located with fifty feet of the nearest dwelling in Winter or one hundred and fifty feet in Summer unless permitted by the inspector. Where camps are operated during the summer, privies shall be made fly-proof. The type of privy used shall meet the requirements of an inspector.
- (m) WATER SUPPLY.—If water supply is obtained from a lake or river the intake shall be located at least two hundred feet from the nearest building and in a direction upstream from the camp, and a container for drinking water shall be supplied with a well-fitting cover and tap, to prevent contamination.

SANITATION CONTRACTS

16. No employer shall operate or maintain a standard camp unless he has entered into a sanitation contract in respect of such camp.

17. It shall be the duty of every physician entering into a sanitation contract to ensure that the standard camps covered by the contract are at all times kept and maintained in an efficient sanitary condition and that nuisances are prevented from arising or, if they arise, are promptly abated, and to carry out, observe and perform within such camps and all buildings and premises forming any part thereof, the duties of a medical officer of health under *The Public Health Act* with respect to the prevention and abatement of nuisances.

18. A contract physician entering into a sanitation contract shall, by himself or an assistant contract physician, make a thorough sanitary and health inspection of every standard camp in actual operation or use, covered by the contract, at least once a month, and oftener if required by an inspector, and shall on the first day of every month transmit to an inspector, a report of inspections made in the preceding month and according to the form provided for such purpose by the Department.

19. The inspector may by reason of difficulty of access or other sufficient cause, waive the necessity for monthly inspections of any camp to the extent he may deem advisable.

MEDICAL, SURGICAL AND HOSPITAL CARE OF WORKMEN

20. (1) Every employer of workmen in a standard camp may enter into a medical contract with a contract physician for medical, surgical and hospital care of workmen in his employ, but whether or not any such contract is entered into, the duty of providing medical, surgical and hospital care and treatment and maintenance while under such care or treatment for every workman in the employ of such an employer shall primarily be and remain the responsibility of the employer subject to the limitations hereinafter set out.

(2) This regulation shall apply to all workmen employed in a standard camp whether or not such workmen are housed in the camp and whether or not such workmen reside in an unorganized district.

(3) Where an employer has entered into a medical contract, he shall notify every workman in his employ of the name and address of the contract physician.

21. (1) During the currency of a medical contract or an arrangement authorized by the Minister under subsection (6), an employer may deduct and retain from the pay or wages due to any workman entitled to the benefits of such contract a sum not exceeding \$1 per month commencing from his first pay and once a month thereafter during the period of employment, and all sums so deducted and retained shall, without rebate or reduction be paid monthly by the employer to the contract physician, or as the Minister may authorize in an arrangement under subsection (6).

(2) Any employer who fails to pay to the contract physician or as authorized by the Minister under subsection (6) all sums deducted from wages of workmen for medical and surgical care shall incur a penalty of not less than twice the amount retained by the employer from the sums so deducted.

(3) The employer shall keep records showing a separate accounting of all sums deducted from the wages of workmen in his employ for medical and surgical care, and showing the disbursement of such sums, and such records shall be open to inspection at any reasonable time by the contract physician or an inspector.

(4) The Department may require statements signed by the employer showing, for such period of time as the Department may deem necessary, the number of workmen employed by the employer, the number of such workmen from whose wages any deduction for medical and surgical care has been made by the employer, the sums deducted by the employer from the wages of workmen in his employ for medical and surgical care, the sums paid pursuant to a medical contract to contract physician, the sums paid pursuant to a sanitation contract to a contract physician, and the sums paid pursuant to an arrangement authorized by the Minister under subsection (6).

(5) The Department may authorize any inspector or any officer of the Department to inspect and audit the payrolls and books of any employer insofar as they are affected by these regulations.

(6) In the case of an employer who usually employs more than five hundred workmen, the Minister may authorize an arrangement whereby the employer may use the sums deducted from the wages of workmen in his employ for the establishment of an industrial medical service, including such particulars as the Minister may direct and authorize.

22. (1) Every contract physician entering into a medical contract with an employer shall supply medical and surgical care, treatment and medicine to every workman of the employer entitled thereto under the terms of the contract and in accordance with these regulations unless the contract as approved by the Department specifies otherwise.

(2) Every contract physician shall report at the end of each month to the Department on the physician's report form all cases of sickness and non-industrial accidents among employees under his care.

(3) Every contract physician who employs or engages any other physician to perform any services other than consultant services in connection with a medical contract shall notify the Department and the Department may require the employer, contract physician and other physician, or any of them, to furnish such information as may be necessary and may require further or other contracts to be entered into.

23. The contract physician shall cause a notice to be posted in a camp a reasonable time in advance of his visits to such camp so that the workmen in the camp may have an opportunity to consult him.

24. (1) Every employer shall provide facilities for the isolation of workmen suffering from a communicable disease, to the satisfaction and approval of an inspector, and the employer or contract physician shall arrange for general hospital accommodation and facilities where necessary for the treatment of workmen suffering from sickness or injury.

(2) The employer shall provide and pay for transportation of any workman when necessary for medical and surgical treatment to which he is entitled under these regulations.

25. Within a reasonable time after the admission of any workman as a patient in a public hospital, the superintendent of the hospital shall notify the employer of the workman of such admission, giving such particulars as may be ascertainable to enable the employer to identify the employee, and in the event that the superintendent neglects to notify the employer, the Department may exempt the employer from any liability imposed upon him by these regulations for the maintenance charges for maintaining the workman in the hospital.

26. The responsibility and liability of an employer under the provisions of regulations 20 to 24 shall be subject to the following limitations:

- (a) In cases where the workman has been in his employ for less than three months out of the six months immediately preceding the need for medical, surgical or hospital care arising, and the illness and consequent inability to work is the result of a chronic or degenerative disease or of an infection or defect arising prior to the commencement of employment, the employer shall be responsible only to return and pay the cost of return of the workman to the municipality in which he was last resident in Ontario within the meaning of *The Public Hospitals Act*, or, in the event of no such residence existing and the workman being without means, the employer shall be responsible for returning and paying the cost of return of the workman to the place from which he was engaged, and for providing such medical care and treatment and maintenance as the workman may need until he is returned to such municipality or other place.
- (b) In cases where any workman has been in his employ for three months or more out of the six months immediately preceding the need for medical, surgical or hospital care arising, the employer shall be responsible and liable for providing such care and for maintenance of the workman for a period not exceeding ninety days.
- (c) In cases where the workman becomes ill and by reason thereof, need for medical, surgical or hospital care and treatment arises within ninety days after the workman has ceased employment with the employer, and such illness is proved to have originated or been occasioned during the course of such employment, and such workman is an indigent person, the employer shall be responsible and liable for such medical, surgical and hospital care and for the maintenance of the workman within the period of ninety days after such workman has ceased employment and not afterwards.
- (d) The employer shall not be liable for the payment of the charges for treatment of any workman in a sanatorium under *The Sanatoria for Consumptives Act*.
- (e) In cases where the workman is suffering from an accident for which the employer is not responsible under *The Workmen's Compensation Act*, the employer shall be responsible and liable for medical and surgical care, and treatment and maintenance except maintenance in a public hospital.

27. Any dispute which may arise between any workman, employer or contract physician with respect to the responsibility or liability of an employer or the contract physician for the medical, surgical or hospital care or for the maintenance of the workman under the provisions of these regulations, may be referred to the Department by the workman, employer or contract physician and the decision of the Department therein evidenced by its certificate shall be final and binding on all persons affected thereby and shall not be open to question.

28. Nothing in these regulations shall in any way render an employer or a contract physician responsible or liable for the medical, surgical or hospital care and treatment or for the maintenance of any workman in cases where the illness or injury of such workman arises as a result of acute alcoholism, drug addiction or venereal disease.

29. Nothing in these regulations shall in any way relate to or affect matters of compensation determinable under *The Workmen's Compensation Act*, or render an employer or a contract physician responsible or liable for medical, surgical or hospital care and treatment or for the maintenance of any workman in cases to which the said Act applies.

30. Any employer of workmen who makes any deduction from the wages of such workmen for medical, surgical or hospital care shall be subject to the provisions of regulations 20 to 29 to the same extent as an employer of workmen in a standard camp.

MEDICAL AND SANITATION CONTRACTS

31. (1) The Department may prescribe the form of sanitation contract to be entered into between an employer and a contract physician pursuant to these regulations, and may permit variation from such form in any case where the Department is of opinion that the circumstances so warrant.

(2) Every employer entering into a medical contract or sanitation contract with a contract physician shall transmit by registered post to the Department or an inspector a copy of such contract signed by the parties thereto within thirty days after the same has been executed and shall notify the Department or an inspector at the same time that the contract physician is notified of cancellation or expiration of the contract.

32. (1) Every medical contract and sanitation contract entered into pursuant to the regulations shall be subject to the approval of the Department and shall be amended or determined as the Department may at any time require, provided, however, that, except as in the next subsection and in regulation 33 is provided, the Department shall specify the amendments or determination which it may require within thirty days after the copy of the contract entered into has been transmitted by registered post to the Department or an inspector.

(2) If the Department is not satisfied that any employer entering into a medical contract or a sanitation contract is in fact the employer of the workmen, the Department may refuse to approve or may revoke any such contract.

(3) In any case, approval of a medical contract shall be given only after a sanitation contract has been submitted to the Department.

33. Notwithstanding the provisions of the preceding regulation or the terms of any medical contract or sanitation contract, the Department may, by reason of neglect or inability on the part of the contract physician to observe, perform or carry out the terms of such contracts or the provisions of *The Public Health Act* and the regulations made thereunder either from the distance at which he resides or practises from the camp or for any other cause which the Department deems sufficient, require the contracts to be determined and cancelled as of date set by the Department.

COMMUNICABLE DISEASES AND NUISANCES

34. Every employer establishing or operating a camp and every contract physician shall, in addition to any other duties or responsibilities cast upon him under these regulations, have, observe, and perform the same duties, obligations and responsibilities with respect to communicable diseases and their care, prevention and abatement as lies upon a householder and attending physician respectively under the provisions of *The Public Health Act* and regulations made thereunder.

35. Every employer establishing or operating a camp shall, in addition to any other duties or responsibilities cast upon him under these regulations, have, observe, and perform the same duties, obligations and responsibilities with respect to nuisances and their prevention and abatement as lies upon the owners or occupants of premises under the provisions of *The Public Health Act* and regulations made thereunder.

36. Upon an outbreak or suspected outbreak of any communicable disease occurring in any camp, the employer who established or operates such camps shall forthwith notify the contract physician, if any, and an inspector, and every contract physician who is or is made aware of any such outbreak shall forthwith notify the inspector.

37. (1) Upon an outbreak or suspected outbreak of any communicable disease occurring in any camp, every workman shall upon the request of an inspector, forthwith furnish to the inspector evidence satisfactory to the inspector that he has been successfully vaccinated or re-vaccinated within a period of seven years immediately preceding such request and evidence satisfactory to the inspector that he has been inoculated against typhoid and para-typhoid fevers within a period of two years immediately preceding such request.

(2) If an inspector, after such request has been made by him, is not satisfied that every workman in a camp has been so vaccinated or re-vaccinated, he may quarantine such camp and every person therein until he is so satisfied, and any person not observing the quarantine placed upon the camp or upon him shall be guilty of a breach of these regulations.

OFFENCES AND PENALTIES

38. Any employer who signs any return, report or statement required by the Department, knowing or having reason to know that any such return, report or statement contains any false information or statement of fact, shall be guilty of an offence and subject to a penalty of not less than \$200 for the first offence and not less than \$500 for any subsequent offence.

39. Any employer or contract physician who contravenes any provision of these regulations for which no other penalty is provided or fails or neglects to carry out or obey any order or direction lawfully made by an inspector shall incur a penalty of not less than \$25 nor more than \$200 for each offence.

40. Any person other than an employer or contract physician who contravenes any provision of these regulations for which no other penalty is provided or fails or neglects to carry out or obey any order or direction lawfully made by an inspector shall incur a penalty of not less than \$5 nor more than \$100 for each offence.

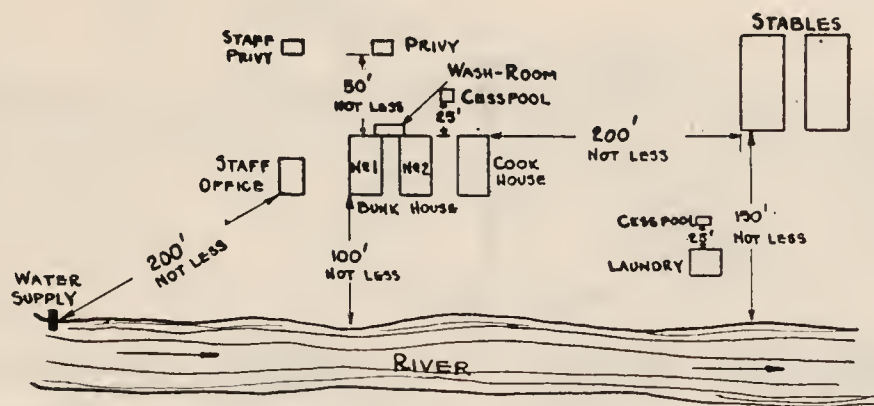


FIG. 1
LOCATION PLAN
CAMP FOR 100 MEN

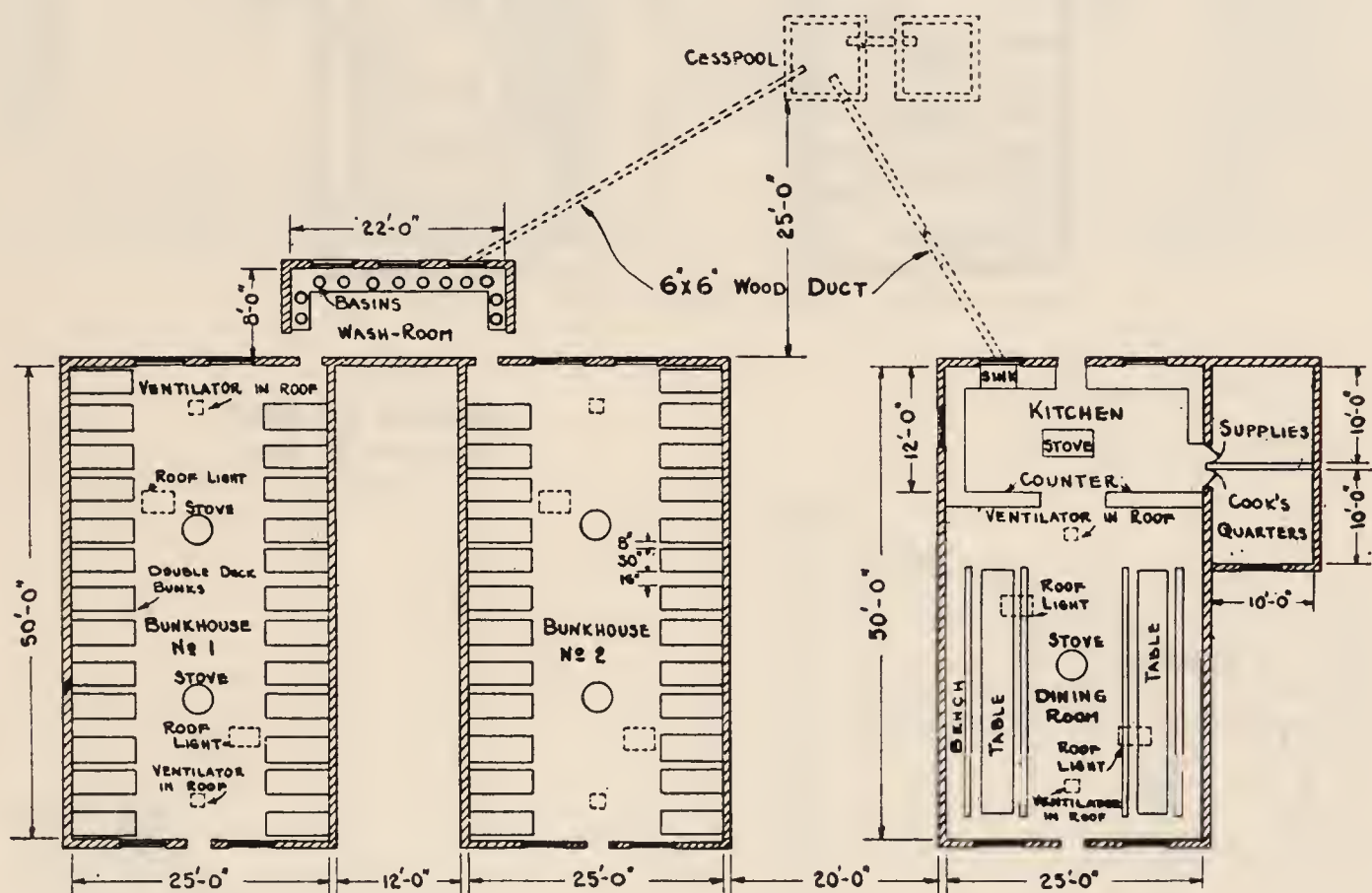


FIG. 2
BUNKHOUSES & COOKERY
CAMP FOR 100 MEN
PLAN

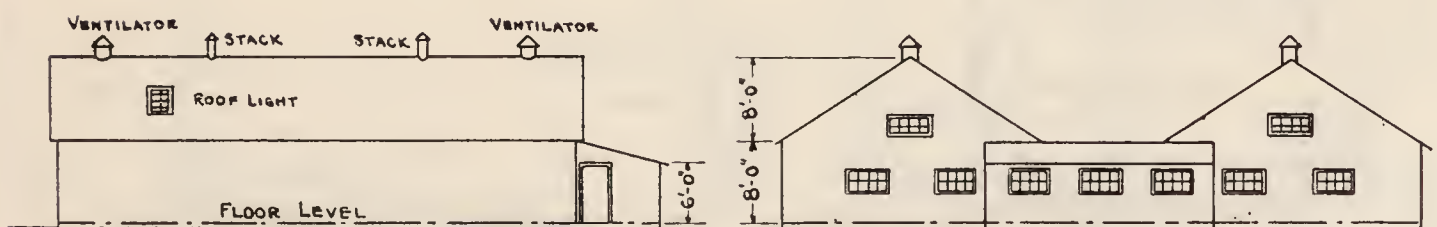


FIG. 3
BUNKHOUSES-100 MEN CAMP
ELEVATION

Suggested Plan for the Construction of a Camp for 100 Men.

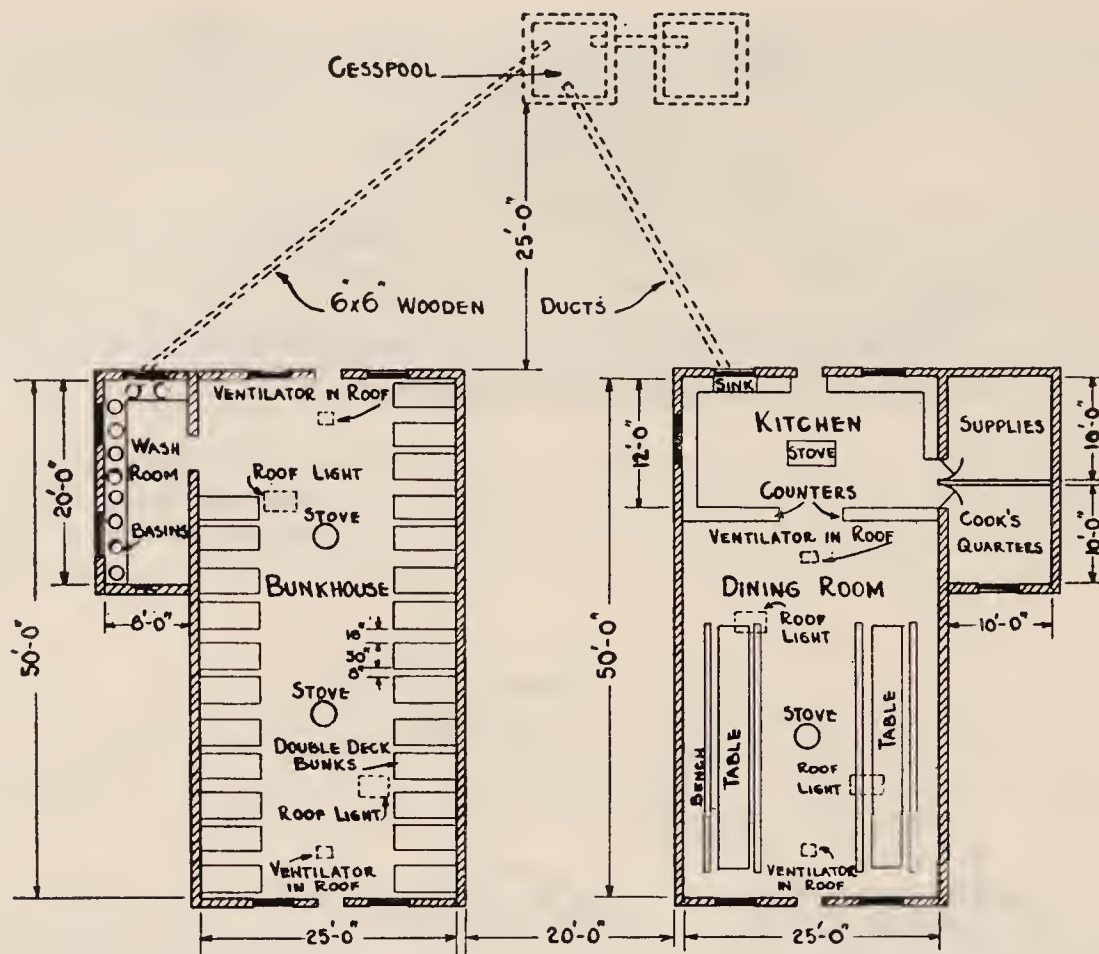


FIG. 4
BUNKHOUSE & COOKERY
CAMP FOR 50 MEN
PLAN

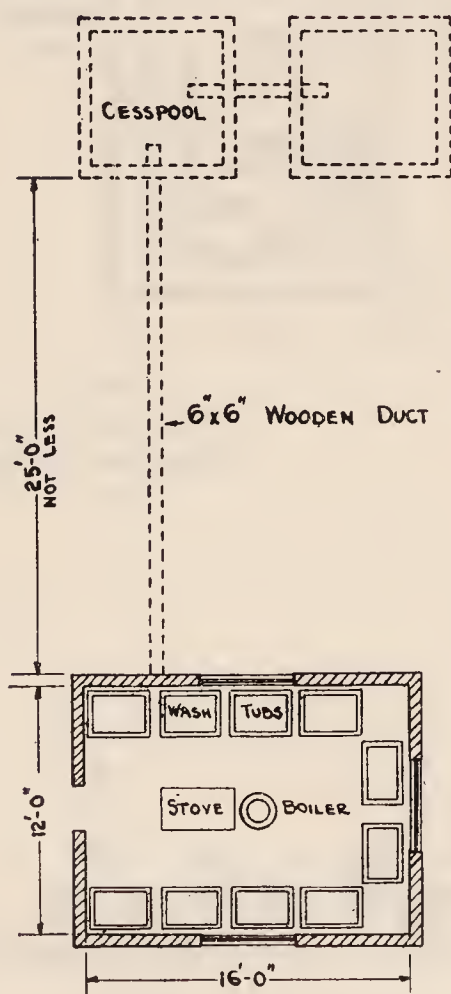


FIG. 6
LAUNDRY
ALL PERMANENT CAMPS

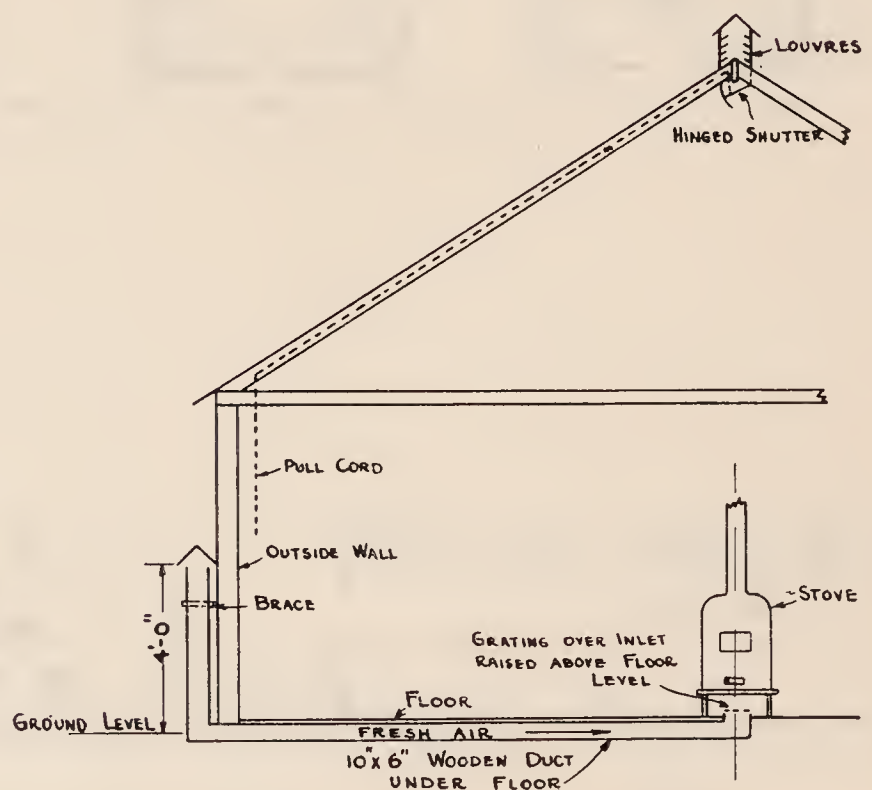


FIG. 5
VENTILATION DETAILS
ALL PERMANENT CAMPS

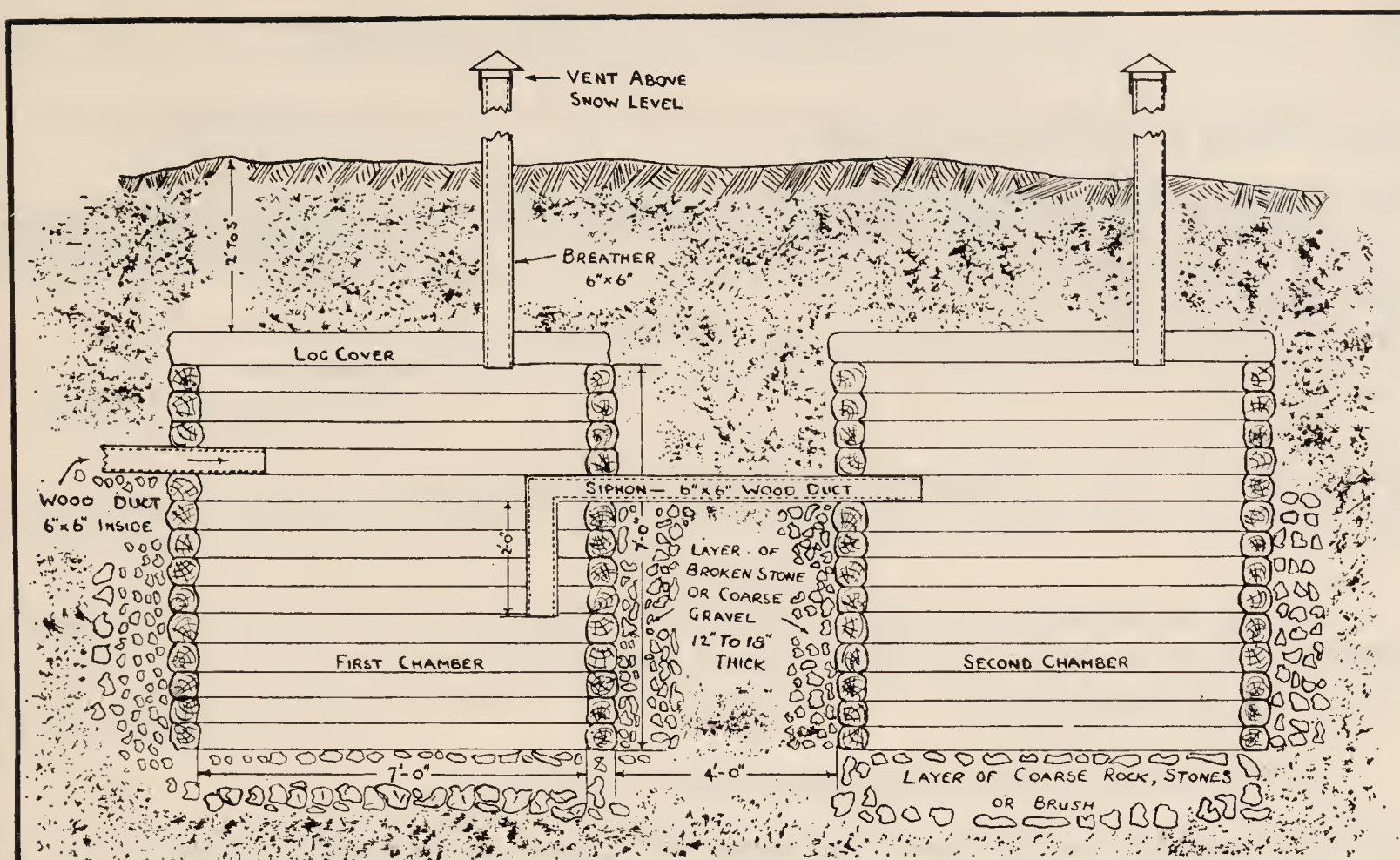


FIG. 7
DOUBLE CESSPOOL
ALL PERMANENT CAMPS

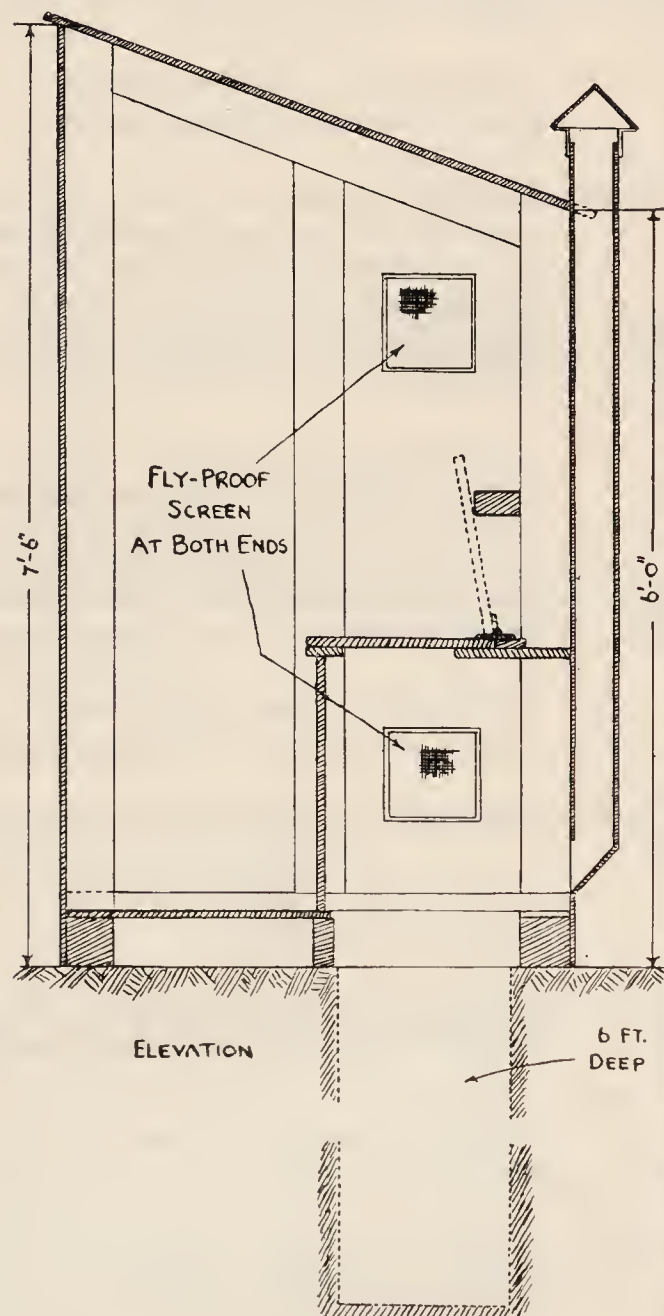
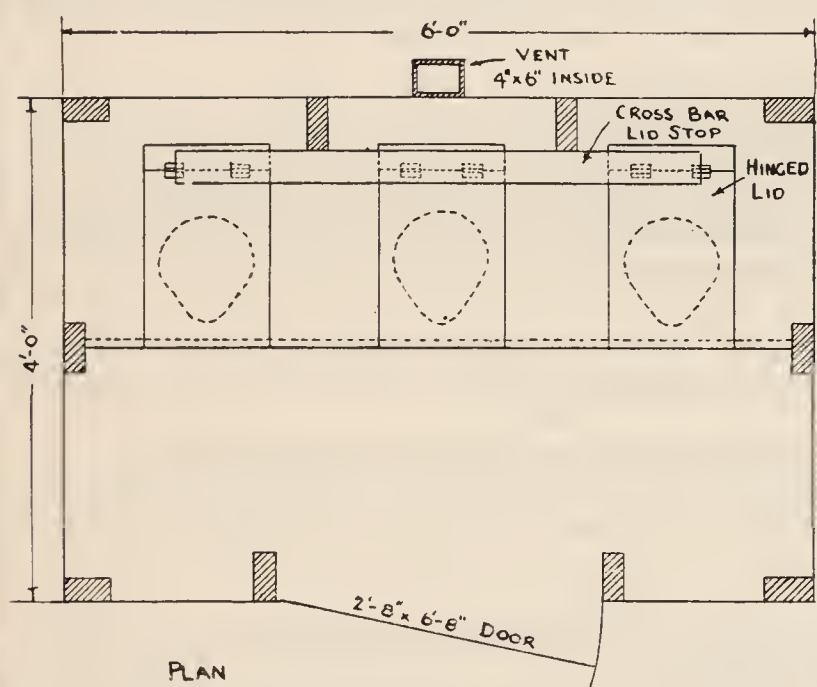


FIG. 8
PRIVY FOR SUMMER CAMP
ONE SEAT FOR EVERY TEN MEN

Copy of an Order-in-Council approved by the Honourable the Lieutenant-Governor, dated the 24th day of June, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that pursuant to clause (zb) of Section 5 of *The Public Health Act*, as enacted by *The Public Health Amendment Act, 1938*, the attached regulations, entitled "Milk Pasteurization Plants" be approved.

Certified,

C. F. BULMER,

Clerk, Executive Council.

MILK PASTEURIZATION PLANTS

REGULATIONS

Made by the Minister of Health pursuant to *The Public Health Act*, and approved by the Lieutenant-Governor in Council the 24th day of June, 1938.

1. In these Regulations:

- (a) "DEPARTMENT" shall mean Department of Health.
- (b) "DISTRIBUTOR" shall mean any person who engages in and carries on the business of distributing and selling milk to the consumer, either directly or through resale by a peddler or storekeeper, and, except, as provided by these regulations shall include a peddler, storekeeper, producer-distributor and any other person who retails milk to the consumer;
- (c) "EMPLOYEE" shall mean every person employed in a pasteurization plant or milk plant;
- (d) "OPERATOR" shall mean every person who by himself or by his agents owns or operates a pasteurization plant.
- (e) "PASTEURIZATION" shall mean the process of heating every particle of milk to a temperature of not less than 143 degrees Fahrenheit, of holding it at such temperature for not less than 30 minutes, and of cooling it immediately thereafter to 50 degrees Fahrenheit or lower in a manner and with equipment and apparatus approved by Department of Health, and every term of like import shall have a corresponding meaning;
- (f) "PASTEURIZING PLANT" shall include every plant in which milk is pasteurized and every building, machine, apparatus, equipment and appurtenance employed in or necessary for the pasteurization, heating, storing, cooling, processing, packaging or in any way handling milk in such plant, and forming part of or connected with such plant, provided that where milk is pasteurized in any part of a plant the entire plant shall be deemed to be a pasteurization plant;
- (g) "PEDDLER" shall mean and include any person who for resale to the consumer, purchases milk from a distributor and distributes and sells such milk to the consumer;
- (h) "PERSON" shall include partnership, association firm and corporation;
- (i) "PRODUCER" shall mean and include any person who produces milk which is sold for human consumption;
- (j) "PRODUCER-DISTRIBUTOR" shall mean a producer who distributes and sells to the consumer, milk of which he is the producer;
- (k) "PROCESSOR" shall mean and include any person carrying on the business of pasteurizing, homogenizing, bottling or in any other way processing milk for human consumption;
- (l) "STOREKEEPER" shall mean and include any person who from or at a store or shop kept by him sells or offers for sale milk to the consumer, which milk has been purchased for resale from a licensed distributor;
- (m) "DIRECTOR" shall mean the Director of the Sanitary Engineering Division of the Department of Health, or any other person designated by the Minister to act for him.

CONDITION FOR ISSUANCE OF CERTIFICATE OF APPROVAL OF PASTEURIZATION PLANT.

2. (1) Upon proof satisfactory to the director that any pasteurization plant has complied with the requirements of these regulations, the director shall issue a certificate of approval in the prescribed form.

(2) Every certificate shall expire on the last day of the calendar year in which the certificate is issued, and may be renewed by the director if he is satisfied that the plant has complied with these regulations.

(3) The Department may suspend or revoke any certificate or renewal thereof if the Department is satisfied that the plant for which the certificate is issued does not comply with any provisions of these regulations.

FORMS

3. The form in the schedule to these regulations entitled "Approval of Pasteurization Plant" is hereby approved as the certificate of approval referred to in clause (zb) of Section 5 of *The Public Health Act*.

PASTEURIZATION, ETC., SUBJECT TO APPROVAL.

4. Every pasteurization plant, every pasteurization, and every operation connected with the handling of milk shall be subject to the inspection and approval of the Director or any officer of the Department.

USE OF WORD "PASTEURIZATION"

5. No person shall use any word or term stating or indicating, either verbally or in writing, that such milk is pasteurized unless such milk has been pasteurized and handled in a pasteurization plant in accordance with the provisions of these regulations.

ESTABLISHMENT, ETC., OF PLANT.

6. (1) No person shall establish, erect, reconstruct, alter or enlarge a pasteurization plant unless the approval of the Department has been obtained.

(2) Where an application for approval is made under subsection (1) the applicant shall furnish to the Department a copy of the plans and specifications therefor together with such other material and information as the Department may require.

BUILDINGS AND LOCATION

7. (1) The location of every pasteurization plant shall be satisfactory to the Department and shall be free from any objectionable conditions including smoke, fumes, dust, odours, flies, and other conditions of nature which might injuriously affect the quality of the milk, and there shall be ready access to and from every building.

CONSTRUCTION OF BUILDINGS

8. The buildings shall be of substantial construction, of adequate size for the operations involved, free from excessive dust, readily cleaned and well lighted.

DOORS AND WINDOWS

9. (1) All outside openings in every building forming part of a pasteurization plant shall be effectively screened, or otherwise protected against the entrance of flies during the period from May 1st to November 1st.

(2) Window and door screens shall be tight-fitting and shall be kept in good repair, and all doors shall be equipped as far as possible with self-closing devices.

(3) Openings through which cans, crates and other articles are passed in rapid succession shall be equipped with flaps, fans or similar devices to exclude flies.

(4) Such additional precautions for the control of flies as may be reasonably necessary or as the Department may require, shall be provided.

LIGHTING AND VENTILATION

10 (1) Every room in which the processing or handling of milk is conducted or in which equipment is operated shall be adequately lighted by natural or artificial light or both.

(2) Every room shall be adequately ventilated through windows, doors or ventilating ducts so as to prevent water of condensation forming on walls, ceiling and equipment.

FLOORS, WALLS AND CEILINGS

11. (1) The floors of every room in which milk is handled or stored shall be constructed of concrete, tile, brick, or other good quality, impervious material and the surface shall be smooth, readily cleaned, sloped to convenient outlets, and free from joints and depressions in which water or dirt may collect and the joints between walls and floors shall be covered.

(2) Floors shall be kept clean and free from materials and equipment not regularly used in the room.

(3) Suitably trapped drains of sufficient size and so located as to rapidly remove drainage shall be provided.

(4) The walls and ceilings of rooms in which milk is handled or stored shall have smooth surfaces of impervious and washable material, light in colour, and such surfaces shall be kept clean.

ROOMS IN PASTEURIZATION PLANTS

12. (1) Separate rooms shall be provided in every pasteurization plant for:

(a) Pasteurization, cooling and bottling operations;

(b) Washing and bactericidal treatment of containers and miscellaneous equipment.

(2) Cans of unpasteurized milk shall not be unloaded directly into or stored in the pasteurizing room.

(3) Self-closing doors as far as possible shall be provided on the pasteurizing room, and such doors shall not open directly into any stable, garage, or living quarters.

(4) Cleaned utensils and containers shall be stored in a room or compartment which is kept free from flies, dust, odours and other contamination.

FACILITIES FOR USE OF EMPLOYEES

13. (1) Every pasteurization plant shall, for the purposes of the employees, be equipped with:

(a) Adequate soap and hot and cold water;

(b) Clean towels or towels of such kind and quantity that not more than one employee shall use the same towel;

(c) Washing facilities which shall be conveniently located and shall not be used in any way in the operation of the pasteurization plant or the handling of milk;

(d) Such toilet rooms as may be necessary and such rooms shall be conveniently located, properly equipped, of a sanitary condition, in good repair, provided with adequate ventilation and lighting, and shall not open directly into any room in which milk, equipment or containers are used, or handled, and where privies are used they shall be separated from any other building, fly-tight and equipped with self-closing doors.

WATER SUPPLY

14. Adequate and satisfactory water and drainage facilities shall be provided.

DISPOSAL OF WASTES

15. (1) All wastes and drainage from the operation of any pasteurization plant shall be disposed of in a sanitary manner.

(2) Refuse shall not be permitted to accumulate in the building or on or near the premises except in properly covered containers or receptacles.

(3) Stables shall not be erected or maintained in such proximity to the pasteurization plant as to adversely affect the process, and all manure and garbage shall be treated with fly larvicide during the fly season.

HANDLING, PROCESSING AND STORAGE EQUIPMENT

16. The equipment and containers used in the handling, processing or storage of milk shall be so constructed and kept in repair as to facilitate cleaning and bactericidal treatment, and any surfaces of such equipment and containers with which milk comes in contact shall be of smooth, non-corroded metal or vitreous material, free from accumulation of milk solids and other foreign substances, self-draining and readily accessible for cleaning, and every joint in any such equipment or container shall be made flush with the surface or otherwise constructed so as to avoid open seams.

17. (1) Every pasteurization plant shall have equipment of sufficient capacity for the maximum output of the plant.

(2) Any equipment used for processing or storing milk shall be constructed of such material and so maintained as not to adversely affect the quality or taste of the milk.

(3) Holding vats shall be adequately insulated to prevent undesirable heat losses.

(4) Tight fitting covers shall be provided for the equipment, and shall be so arranged as to prevent the entrance of drainage or water of condensation from the outside into the milk, when in either the open or closed position.

(5) Milk receiving vats shall be so placed and protected as to prevent contamination of the milk.

VALVES AND PIPE CONNECTIONS

18. Every inlet and outlet valve and pipe connection to pasteurization holders shall meet the following requirements:

- (a) Every valve and pipe line used in inlet and outlet connections on pasteurizers or holders shall be of metal not affected by milk to the extent of corroding or pitting the material, and shall not affect the flavour of milk by electrolysis or by other means;
- (b) Every surface in contact with the milk shall be smooth and free from pits, crevices, cracks, open seams or threads;
- (c) Passages shall be constructed to prevent pocketing;
- (d) Every part shall be readily disassembled for cleaning;
- (e) Every inlet valve shall be of the leak-protector type and every inlet valve and connection shall be so constructed and located as to prevent leakage or short circuiting of unpasteurized milk into the pasteurized, or into a pasteurizer or holder other than that being filled;
- (f) Every groove on an inlet valve for diverting leakage shall be of ample dimensions and so arranged to permit free drainage;
- (g) Every pipe line between any inlet valve and pasteurizer or holder shall be as short as possible and shall be sloped or otherwise arranged to drain freely;
- (h) Every outlet valve shall be of the leak-protector type and shall have the valve seat either flush with the inner wall of the pasteurizer or so closely coupled that all milk in the valve pocket is within the influence of the agitation created by the stirring equipment;
- (i) Every outlet valve shall prevent leakage past the valve seat into the milk outlet, and grooves for diverting leakage shall be of ample dimensions and so arranged to permit free drainage;

- (j) Sterilizing connections shall be provided where the construction of the outlet valve makes this necessary and they shall be non-clogging and shall not terminate in a channel through which milk is flowing;
- (k) Valves shall be provided with necessary stops and guides to insure proper operation.

MILK PIPING

19. Milk piping and connections shall meet the following requirements:

- (a) The piping and connection shall be of such size and material that they may be readily cleaned;
- (b) The piping and connections shall be smooth, free from corrosion and all joints shall be soldered flush;
- (c) The length of piping shall be reduced to a minimum;
- (d) No piping, pumps, or equipment shall be used for both unpasteurized and pasteurized milk.

THERMOMETERS

20. (1) Both indicating and recording thermometers of satisfactory type shall be installed and used on each holder in which the holding time is not automatically controlled and in both inlet and outlet manifolds of vat, pocket or continuous flow installations in which the milk is brought to the final pasteurization temperature before entering the holder and in which the time is automatically controlled.

(2) The bulbs of the indicating thermometer and the recording thermometer shall be as close together as practicable.

(3) Indicating thermometers shall be easily read and shall be accurate within one-half of one degree Fahrenheit.

(4) Recording thermometers shall be moisture-proof, easily read, with scale divisions of not less than one-sixteenth of one inch for each degree between 140 and 145 degrees Fahrenheit, and the smallest time-scale division shall not exceed ten minutes and every chart shall be graduated for and shall make one revolution in 12 hours.

FOAM IN PASTEURIZERS

21. The equipment used in milk processing shall be such as to preclude as far as possible the formation of foam in pasteurizers or holders and where foam collects in milk holders means shall be employed to keep the atmosphere above the milk at a temperature at least 5 degrees Fahrenheit higher than the pasteurizing temperature.

MILK FILTERS

22. Milk shall be filtered or strained before pasteurization only and no filters, other than metal screens, shall be placed on the outlet side of the pasteurizer or be used on milk after pasteurization.

MILK COOLERS

23. (1) Milk cooling equipment shall be provided of sufficient capacity and type to cool the milk from each pasteurizer or holding vat in a period not exceeding one and one-half hours.

(2) The temperature of the pasteurized milk shall not be reduced to lower than 120 degrees Fahrenheit before passing through the cooling equipment.

(3) The milk shall be cooled to 50 degrees Fahrenheit or lower within a period not exceeding one and one-half hours and held at or below this temperature until delivery.

(4) Surface coolers shall be built of suitable material and so constructed as to afford ready access for cleaning and provision shall be made to prevent water of condensation coming in contact with the milk or the cooling surfaces.

(5) Any open surface coolers shall be either located in separate well-ventilated rooms, free from flies, dust, drip, splash, manual contact and other sources of contamination, or provided with tight fitting covers or shields, and such covers or shields shall be so arranged as to afford ready access for cleaning the cooler.

(6) Regenerative heater-coolers shall be so constructed and maintained as to prevent access of the unpasteurized milk into the pasteurized milk.

(7) Solder shall not be used on the metal separating the pasteurized milk from the unpasteurized milk.

BOTTLING EQUIPMENT

24. Milk shall be bottled and capped at the plant where pasteurization takes place and in accordance with the following conditions:

- (a) Bottling shall be done in mechanical equipment which can be readily cleaned and which does not expose the milk to contamination during the operation;
- (b) The equipment and the operation shall be such that a uniform mixture of the milk is added to each bottle;
- (c) No unpasteurized milk shall be bottled or come in direct contact with bottling equipment used for pasteurized milk.

CAPPING EQUIPMENT

25. Bottles shall be capped by mechanical equipment and hand capping shall not be permitted.

COLD STORAGE FACILITIES

26. Adequate cooling facilities and cold storage shall be provided in the pasteurization plant for the pasteurized milk and that held in storage prior to processing.

CLEANSING EQUIPMENT

27. Containers and other equipment used in the processing or handling of milk shall be washed and disinfected in equipment satisfactory to the Department.

PASTEURIZATION

28. (1) The operation of the pasteurizer or holding vat shall be such that the variation in temperature between the hottest and coldest sections of the milk shall not exceed one degree Fahrenheit.

(2) The temperature of the milk in the pasteurizer at any time shall be taken as that shown on the indicating thermometer rather than the recorder.

(3) The temperature shown by the recording thermometer shall be checked daily by the operator against the indicating thermometer and shall be adjusted to read at no time higher than the indicating thermometer.

(4) The bulbs of the thermometers shall be placed as close together as practicable and at the point of lowest temperature in the pasteurizer or holder.

29. (1) No recording chart shall be used for a period which will interfere with the clarity of the record or which will permit over-lapping of graphs.

(2) The person in charge of the recorder shall sign every chart and shall see that the following information is recorded thereon:

- (a) The date of each operation of the pasteurizer or holder;
- (b) The number of the pasteurizer or holder, if more than one is in use, to which the recorder was attached;
- (c) A recording of the indicating thermometer at some time corresponding with a marked point in the holding period.

(3) Where more than one recording thermometer is in use, the chart shall be numbered in such a manner as to indicate the recording thermometer which was used for such chart.

(4) The operator shall keep every chart for a period of three months after the date thereof.

30. The cover of the pasteurizer shall be kept closed, during the holding period and until the milk is removed, except in case of emergency.

31. (1) Any milk which has been contaminated subsequent to pasteurization shall be repasteurized, but milk which has come into contact with contaminated machinery or has overflowed from routine operations shall not be used for domestic consumption.

(2) If any milk accidentally passes through equipment without proper treatment such equipment shall be sterilized before it is used again.

32. (1) Any equipment used for pasteurization and subsequent handling of the milk shall be given a bactericidal treatment by steam, hot water or other disinfectant approved by the Department when assembled, immediately prior to the day's operations.

(2) Every valve shall be thoroughly steamed or disinfected before being used.

33. (1) No piping, pumps or equipment with which pasteurized milk comes into contact shall be used in the handling of unpasteurized milk or other contaminated material, nor shall any connection be permitted between unpasteurized and pasteurized milk.

(2) Every valve and pipe connection to or from a pasteurizer or holder shall be disconnected during the holding period, and when not in actual use.

COOLING MILK BEFORE PASTEURIZATION

34. Milk which is or is likely to be held for more than two hours in the plant before pasteurization shall be cooled to 50 degrees Fahrenheit or lower upon arrival, and shall be held at such temperature until pasteurization begins.

UNPASTEURIZED AND PASTEURIZED MILK IN THE SAME PLANT

35. No unpasteurized milk shall be bottled in any pasteurization plant or placed in containers for delivery to consumers.

PRODUCTS OTHER THAN MILK

36. No products other than milk products and products of which milk is a substantial component shall be handled or processed in a pasteurization plant unless equipment entirely separate from equipment used in pasteurization is used and the handling or processing is carried on in a separate room.

CLEANING OF EQUIPMENT IN THE PLANT

37. (1) Every container and any equipment which comes into contact with or is used in the handling of milk shall be thoroughly cleaned and subjected to effective bactericidal treatment after each use, and at least once each day.

(2) All demountable apparatus including piping, pump parts, valves and pipe fittings shall be taken down daily for cleaning, and after cleaning shall be stored on racks or other places protected from contamination.

(3) Every can, tank and other container used for transporting milk to a pasteurization plant shall be thoroughly cleaned and subjected to effective bactericidal treatment before leaving the plant, and such can, tank and other container shall not be used for transporting milk or other products from the pasteurization plant.

STORAGE AND HANDLING OF CONTAINERS

38. (1) All bottles, cans, containers and equipment shall be stored, after cleaning, in such manner as to protect against drainage, dust, flies and other contamination.

(2) During storage and when in operation the interior of every container and any surface thereof exposed to milk shall be protected against manual contact and other sources of contamination.

(2) During storage and when in operation the interior of every container and any surface thereof exposed to milk shall be protected against manual contact and other sources of contamination.

STORAGE OF BOTTLES AND CAPS

39. All bottle caps and other paper or parchment which comes into contact with milk shall be purchased and stored in sanitary tubes or cartons, and shall be kept free from contamination and in a clean dry place until used.

QUALITY OF MILK REACHING THE PLANT

40. (1) Unpasteurized milk reaching a pasteurization plant for pasteurization or processing shall be clean, cool and of good quality.

(2) Any milk which is tainted, soured, unpalatable, or otherwise unsatisfactory shall be rejected at the pasteurization plant, and shall be returned to the shipper or disposed of at his direction.

41. (1) Milk which is to be, or is intended to be pasteurized shall be cooled within two hours after milking to a temperature of 50 degrees Fahrenheit or lower, and the milk reaching the pasteurization plant, unless to be pasteurized within two hours after milking, shall not have a temperature higher than 60 degrees Fahrenheit.

(2) Where there is a long interval between milking and delivery to the plant the temperature shall be kept below 50 degrees Fahrenheit.

DELIVERY OF MILK

42. All milk, except that sold in wholesale quantities, shall be delivered in glass bottles or other containers satisfactory to the Department, and every such container shall be labelled with the word "pasteurized," and the name of the operator in capital letters of eight point size or larger.

43. (1) Every vehicle used for transportation or delivery of pasteurized milk shall be so constructed and maintained as to protect the milk from excessive heat and contamination.

(2) Every such vehicle shall be kept clean and shall not be used for transporting anything likely to cause contamination of the milk or the containers.

PERSONNEL IN PASTEURIZATION PLANTS

44. Every pasteurizing and processing operation shall be under the direct supervision of a person having an adequate knowledge of such operations.

45. (1) Every person whose work brings him into contact with the pasteurizing, processing or handling of milk, or the handling of containers or equipment shall be free from, and shall not be a carrier of, any disease which may be spread through the medium of milk.

(2) Every such person shall satisfy the Medical Officer of Health of the municipality of which the milk is sold or delivered as to his freedom from such diseases, and shall submit to such examinations and tests as the Medical Officer of Health or the Department may require.

(3) When any operator believes or suspects that any employee is suffering from any such disease the operator shall forthwith notify the Medical Officer of Health of the municipality in which the milk is sold or delivered.

(4) Upon evidence satisfactory to the Department that any such person has failed to satisfy any of the requirements of this section, the Department may direct the operator of the plant in which such person is employed to see that such person is not employed in any work which may bring him into contact with the pasteurizing, processing or handling of milk or the handling of containers or equipment, and every such operator shall carry out the direction of the Department.

46. (1) Any person employed in a pasteurization plant shall be clean in habits, wear clean, washable outer garments, and keep his hands clean while engaged in work.

(2) No person shall spit, smoke or use tobacco in any form in any part of the plant in which milk is processed or handled.

Certificate No.

Form P.



ONTARIO

Ontario.

THE DEPARTMENT OF HEALTH

PROVINCE OF ONTARIO

APPROVAL OF PASTEURIZATION PLANT

It is Hereby Certified that the pasteurization plant operated by
 at
 has complied with the regulations made pursuant to clause (zb) of section 5 of *The Public Health Act*, and that the Department hereby issues its certificate of approval for the said pasteurization plant. This certificate expires on.....

Dated at Toronto this.....day of.....19.....

Crest
and
Seal

.....
 Director, Sanitary Engineering Division for the
 Ontario Department of Health.

Copy of an Order-in-Council approved by The Honourable, the Lieutenant-Governor, dated the 16th day of December, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the attached regulations being "Regulations respecting the Manufacture of Wine" made by the Minister of Health, pursuant to section 5 of *The Public Health Act, R.S.O., 1937*, chapter 299, be approved, and that the "Regulations Respecting the Manufacture of Wine," approved by Your Honour on the 17th day of December, 1930, pursuant to *The Public Health Act*, be repealed.

Certified,

C. F. BULMER,

Clerk, Executive Council.

REGULATIONS RESPECTING THE MANUFACTURE OF WINE

1. In these regulations:

- (a) "Wine Manufacturer" shall mean and include a manufacturer of wine and a manufacturer of native wine, who holds a Native Wine License from the Liquor Control Board;
- (b) "Wine" shall mean wine and native wine as defined by The Liquor Control Act (Ontario), and any blends of native wine;
- (c) "Minister" shall mean the Minister of Health of Ontario;
- (d) "Department of Health" shall mean the Department of Health of Ontario;
- (e) "Inspector" shall mean a person authorized by the Department of Health to inspect the plant, premises, equipment and products of wine manufacturers.

2. No wine manufacturer shall be permitted to continue the manufacture, processing, or storage of wine in premises in which the sanitary conditions are not satisfactory to the Minister.

3. Where deemed necessary the Minister may issue an order to a wine manufacturer requiring him or her to:

- (a) Make certain alterations to the plant or premises;
- (b) Alter, procure or dispense with any wine-making equipment or material;
- (c) Maintain satisfactory ventilation and sanitary conditions in the plant and premises;
- (d) Provide a "man-hole" near the bottom of wine storage tanks in addition to an opening of sufficient size at the top for protection of workers and to facilitate washing.

4. Where a wine manufacturer makes an alteration or makes an addition to any building used in connection with the manufacture of wine, or where a new building is to be constructed for the same purpose, the plans and specifications must first be approved by the Department of Health.

5. An inspector may at any time enter and inspect the plant and premises of any wine manufacturer, and may seize for purposes of proof or for analysis, samples of native wine, fruit or other material found therein or thereon.

6. An inspector may order a wine manufacturer to cleanse and disinfect the plant, premises and wine-making equipment.

7. The plant, premises and equipment of a wine manufacturer shall be maintained at all times in a clean and sanitary condition, satisfactory to the inspector.

8. An inspector may order a wine manufacturer to remove from the premises any fruit which he deems unfit to be used for the manufacture of wine and any marc, pomace or other material producing or likely to produce an unsanitary condition.

9. The inspector shall furnish such information and make such reports as may be from time to time required by the Minister.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 30th day of November, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health; the Committee of Council advise that the attached regulations made pursuant to section 4 of the *Public Hospitals Act* be approved by Your Honour.

Certified,

C. F. BULMER,

Clerk, Executive Council.

REGULATIONS

Passed by the Lieutenant-Governor in Council upon the recommendation of the Minister of Health, pursuant to *The Public Hospitals Act, 1931*.

MANAGEMENT AND OPERATION

1. (1) Every hospital shall be governed and managed by a board appointed or elected in accordance with the provisions of the authority whereby the hospital is established.

(2) The president of the medical staff of the hospital shall be ex-officio a member of the board.

(3) The Board shall have power to govern, manage and operate the hospital and shall be responsible for the due observance and enforcement of the Act, the regulations, and the by-laws.

2. (1) The superintendent of a hospital shall be responsible to the board for the due observance and enforcement of the Act, the regulations, and the by-laws, and he shall be the officer representing the hospital with whom the Minister, the inspector and the other officers of the Department shall ordinarily deal with regard to hospital matters.

(2) Subject to the by-laws and direction of the board, the superintendent shall have control over the admission, discharge and accommodation to be furnished to patients.

(3) Where, in the opinion of the medical practitioner attending a patient, the condition of such patient makes it advisable for the relatives of the patient or any other persons to be present in the hospital, the superintendent shall be responsible for the notification of such relatives or other persons of the patient's condition.

3. Every board shall pass by-laws for the purpose of carrying out the provisions of the Act and the regulations, and unless the Lieutenant-Governor in Council otherwise directs, the by-laws of every board shall provide for:

(a) The appointment of and prescribe the functions of the superintendent;

(b) The appointment of and prescribe the functions of a medical and surgical advisory board and a medical and surgical staff (referred to in these regulations as the "medical staff");

(c) The appointment of and prescribe the functions of a nursing staff;

(d) The establishment of an administrative and accounting system; and

(e) The appointment of an auditor.

INSPECTION

4. (1) The inspector shall perform the duties assigned to him by the Minister and Deputy Minister and shall have power with respect to any hospital to:

- (a) Administer and enforce the Act and the regulations;
- (b) Inspect and make inquiries regarding the premises, management and operation;
- (c) Require that returns, reports, statements and other information relating to the hospital be furnished to him or to the Minister, periodically or otherwise, by the superintendent or any other officer or member of the staff of the hospital;
- (d) Collect and compile such information and make such reports, returns and statements as the Minister may require;
- (e) Examine and audit books, accounts, records and funds, and, where necessary, remove them into the custody of the Department;
- (f) Investigate the financial condition of any person who is an indigent patient and require information with respect to the financial condition of such person to be furnished by any person in possession of such information;
- (g) Investigate any matter affecting a hospital or hospitals in general and require information with respect to any such matter to be furnished to him by any person in possession of such information.

5. Every application, report, return, statement or other written communication required to be made or furnished to the Minister, Deputy Minister, inspector or department under the Act or those regulations shall be sent to the Inspector of Hospitals, Department of Health, Parliament Buildings, Toronto.

ESTABLISHMENT—ALTERATIONS

6. (1) Every application for the approval by the Lieutenant-Governor in Council of the creation, establishment, incorporation, operation or use as a hospital of any institution, building or other premises or place shall be in writing and shall be forwarded to the inspector together with such plans, drawings, specifications, particulars and other information as the Minister may require.

(2) No hospital shall be altered by enlarging or remodelling unless the Minister has given his approval in writing, and every application therefor shall be made in writing and shall be forwarded to the inspector together with such plans, drawings, specifications, particulars and other information as the Minister may require.

(3) Every contract for the construction, remodelling, renewal, repair or demolition of a hospital shall comply with the provisions of *The Government Contracts Hours and Wages Act, 1936*.

FIRE PRECAUTIONS

7. In every hospital, there shall be a system of fire control and provision for fire extinguishment.

8. Unless exempted by the Minister, every hospital shall be equipped with an electrically or manually operated fire alarm system so installed as to effectively attract the attention of persons in every part of the hospital except those portions which the Minister may exclude from the provisions of this subsection.

9. The superintendent shall cause the nurses and employees of the hospital to be instructed as to the location and operation of fire-fighting equipment.

10. The superintendent of every hospital shall cause all nurses and employees to be regularly instructed and trained in their duties in case of a fire alarm, particularly with respect to the handling of mattresses and stretchers and the removal of patients from the hospital.

11. Such stretchers as may be required for the removal of patients from the hospital in case of fire or other emergency shall be kept in convenient locations in the hospital.

12. In every hospital there shall be at least two independent means of egress from every floor and from every separate section of a floor.

13. In every hospital all exit facilities and fire escapes shall be of a type suitable for the removal of patients in case of fire and shall be so lighted that they may be used with safety at night.

14. Nitrocellulose X-ray films shall not be used or stored in the hospital, provided that such quantity of films as may be necessary for current reference may be kept within the hospital in a fireproof container.

15. In every hospital, sheets used for tenting in steaming treatments shall be so treated that they will not burn with a flame.

16. Where possible, every hospital shall be equipped with sufficient standpipes and hose to permit of effective fire fighting in any part of the hospital, including the basement, without using hose of a greater length than seventy-five feet, and shall also be equipped with sufficient chemical or other hand-operated fire extinguishers to afford ample protection against an incipient fire in any part of the hospital.

17. The superintendent shall charge the engineer or some other qualified person with the inspection of the hospital at least once each month and such person shall submit to the superintendent on forms prescribed by the Minister, a written report on conditions pertaining to fire hazard, fire-fighting equipment and facilities and provisions for the removal of patients in case of fire or other emergency, and such reports shall be kept on file by the superintendent for a period of not less than two years.

EQUIPMENT

18. Every hospital shall be furnished and equipped in a manner and to a degree consonant with the character of and the hospitalization service carried on by the hospital.

ISOLATION

19. (1) Every hospital shall provide suitable accommodation for the temporary isolation of patients suspected of suffering from a communicable disease until a proper diagnosis can be made. ¶

(2) When a patient is found to be suffering from a communicable disease, immediate steps shall be taken to isolate such patient to prevent the spread of the disease.

NURSING STAFF

20. Every hospital shall employ a sufficient number of registered nurses so that at least one registered nurse shall be on duty at all times.

PATIENTS' REGISTER

21. Every hospital shall keep a register of patients in the form prescribed by the Minister. ¶

22. (1) An index number shall be issued to every patient upon his admission to the hospital, such numbers to be issued in numerical order, and all records pertaining to a patient shall be indicated by such number followed by the final two digits of the hospital year for which the number is issued.

(2) The index numbers shall commence with number one at the beginning of each hospital year, provided that a patient remaining in the hospital at the end of the hospital year shall retain the index number assigned to him upon admission. ¶

(3) For the purposes of this regulation, a baby born in a hospital shall be deemed to be an admitted patient.

STAFF MEETING

23. (1) The members of the medical staff shall each year hold a general meeting.

(2) At such meeting the members of the medical staff shall by a majority vote:

(a) Determine a time and place at which a meeting of such staff shall be held each month;

(b) Elect a president and secretary;

(c) Determine the time and place of subsequent annual meetings at each of which a president and secretary shall be elected.

24. (1) The secretary shall present at each meeting a report of the professional work done in the hospital since the preceding meeting, and shall keep a record of the proceedings at each meeting.

(2) The regular business of the meeting shall include a discussion of the report submitted by the secretary, and there shall be no abstract discussion of a scientific or medical subject until such business has been determined.

(3) The secretary shall present in writing to the superintendent such report and recommendations as the staff by a majority vote may require to have made to the superintendent or to the board.

FEES

25. No medical practitioner who is a member of the staff of the hospital shall give to or receive from any practitioner any part of the fees received from a patient unless the division of such fee is clearly indicated on the account rendered the patient.

26. No medical practitioner shall charge any fee for attendance upon any patient for whose treatment the hospital receives any payment from a municipality, except where a patient is admitted to a public ward as a municipal charge, and during the course of treatment it becomes known to the superintendent that such patient is not indigent, such patient may, upon his transfer to a private or semi-private ward, select the medical practitioner who shall attend him, and the medical practitioner may then charge a fee for his attendance.

DUTIES IN CASE OF ILLNESS OR ABSENCE

27. In the event that any member of the medical staff of a hospital is unable through illness, absence or other cause, to perform his hospital duties, he shall immediately notify the chief of the service in which he is engaged, or the president or secretary of the medical staff, who shall notify the superintendent, and such chief of service, president or secretary shall arrange for the appointment of a substitute to take care of public patients.

28. (1) Any medical practitioner who is in charge of the treatment of any private patient shall, in the event that he is unable to fulfil his duties with respect to such patient, arrange for a substitute practitioner and shall so advise the superintendent.

(2) In the event that the superintendent has reason to believe that a medical practitioner is unable by reason of illness, absence or other cause, to fulfil his duties with respect to a private patient, the superintendent shall inform the president or secretary of the medical staff who shall notify the patient or his relatives or his friends.

ADMISSIONS

29. No person shall be admitted as a patient in any hospital without the consent of the superintendent or person acting in his place.

30. Every medical practitioner who sends any person to a hospital to be admitted as a patient therein shall be responsible for giving such information to the superintendent or person acting in his place as may be necessary to assure the protection of others from any such person who, by reason of any fact, may constitute a danger to other patients.

31. Any patient for whose treatment the hospital received any payment from a municipality shall be attended by the active medical staff and shall be assigned to the appropriate service or if there is no service division such patients shall be assigned to the active medical staff in rotation.

32. Any patient for whose treatment the hospital receives no payment from a municipality and who has no attending medical practitioner shall be assigned to members of the active medical staff on service in rotation, but in the case of any patient requiring special care, assignment shall be at the discretion of the chief of service or, if there be no division into service, at the discretion of the president of the medical staff.

LABORATORY

33. A clinical laboratory shall be provided in the hospital and special examinations which cannot be made in such laboratory shall be referred to a laboratory approved by the Minister and the reports shall become part of the patient's case record.

34. (1) Any tissues or sections of tissues removed at operation or curettage shall be immediately set aside by the surgeon operating and shall be forwarded by the superintendent with a short history of the case and a statement of the findings at the operation to a laboratory approved by the Minister for examination, provided that any tooth, tonsil, frenum, hemorrhoid, finger, toe, hand, foot, arm or leg removed or amputated shall not be so forwarded unless the surgeon desires a special examination.

(2) The pathological report received from the laboratory shall become part of the patient's case record.

ORDERS FOR TREATMENT

35. Subject to the provisions of these regulations, all orders for treatment shall be in writing either on the treatment sheet or in the book provided for this purpose and shall be signed by a medical practitioner.

36. (1) Telephone orders may be dictated to persons designated by the superintendent.

(2) Such orders shall be recorded and signed by the person receiving them, with date, time and the name of the medical practitioner giving the order.

(3) Upon the medical practitioner's next attendance at the hospital any such order shall be signed by him or any medical practitioner authorized by him.

CASE RECORDS

37. A medical history, with result of physical examination and provisional diagnosis, shall be made in writing within seventy-two hours of the patient's admission to the hospital.

38. The board of every hospital shall be responsible for the preparation of a complete medical record of every patient, including identification, complaint, present history, family history, physical examination, special reports as reports of consultations, laboratory examinations, X-ray, provisional diagnosis, medical or surgical treatment, pathological findings, progress notes, reports of operations and anaesthesia, final diagnosis, condition on discharge and follow-up records, and in the event of death, a copy of the death certificate, and the board shall require the medical staff, medical internes or clinical clerks of the hospital to prepare such records.

39. No record which is the property of any hospital shall be removed or inspected, nor shall information contained therein be disclosed to any person except under the following circumstances:

- (a) Upon the request of the superintendent of any other hospital;
- (b) To any person upon a written request signed by the patient;
- (c) In the event of the death or incapacity of the patient, upon a written request signed by the next of kin;
- (d) Upon the direction of the inspector;
- (e) For academic or teaching purposes by the medical staff of the hospital;
- (f) Upon the order of a court of competent jurisdiction.

NOTE:—In addition to these regulations, regard should be had to section 9 of the Venereal Diseases Prevention Act, which reads as follows:

9. (1) Every person who, publicly or privately, verbally or in writing, directly or indirectly, states or intimates that any other person has been notified or examined or otherwise dealt with under the provisions of this Act, whether such statement or intimation is or is not true, in addition to any other penalty or liability, shall incur a penalty of \$200, and in default of immediate payment shall be imprisoned for a period of not more than three months.

(2) Subsection 1 shall not apply to disclosures made to the Department nor to disclosures made in good faith to a medical officer of health for his information in carrying out the provisions of this Act, nor to any communication or disclosures made to a legally qualified medical practitioner or in the course of consultation for treatment for venereal disease, nor to any communication made to the superintendent of any public hospital or sanatorium, nor to any communication authorized or required to be made by this Act or the regulations.

OPERATIONS

40. No surgical operation shall be performed on any patient in a hospital without the consent in writing signed by the patient or his legally qualified representative provided, that where the patient is unable to give consent and where, in the opinion of the surgeon, delay would endanger the patient's life, such consent shall not be necessary.

41. A complete history, physical examination and written pre-operative diagnosis shall be furnished by the operating surgeon or any medical practitioner authorized by him before a patient is submitted to any anaesthetic or surgical operation, provided that where the surgeon is of opinion that the delay occasioned in obtaining such history and examination would be detrimental to the patient, he shall so state in writing and in such event the pre-operative diagnosis shall be furnished in writing and signed by the operating surgeon.

42. Every operation performed in a hospital shall be fully described in writing by the surgeon or any medical practitioner authorized by him and such written description shall form part of the patient's record.

43. Every anaesthetist shall furnish a record showing the type of anaesthetic given, amount used, length of anaesthesia and the condition of the patient following the operation.

44. Where a patient is admitted to a hospital in the condition of abortion, or threatening abortion, or where therapeutic abortion is indicated or wherever emptying of the uterus is indicated for whatever reason, two legally qualified medical practitioners shall examine the patient and shall make and sign records of their findings and recommendations before any operative interference is carried out.

45. Before any major operation is performed on any indigent patient, a member of the surgical staff shall be called into consultation and shall record his opinion in writing and such opinion shall form part of the patient's record.

BLOOD DONORS

46. Regulation numbered 47 shall not apply to friends or relatives of the patient who donate their blood free of charge.

47. In the case of every professional donor, that is, every person who receives any money for donating his blood to be transfused into any patient, the hospital shall keep a record showing:

- (a) The name and address of the professional donor;
- (b) The record of a blood Wasserman or blood Kahn test at least every six months;
- (c) A record of the test showing the blood-grouping of the donor;
- (d) The date and quantity of blood removed from such donor at each transfusion.

MATERNITY PATIENTS

48. (1) The medical practitioner attending any maternity patient shall report to the chief of the obstetrical service, or, if there be no division into service, to the superintendent of the hospital the existence or suspected existence of puerperal sepsis or puerperal fever in any such patient.

(2) It shall be the duty of the chief of the obstetrical service, or, if there be no division into service, it shall be the duty of the superintendent to take such action as will ensure effectual isolation of any such patient.

(3) Any nurse having the care or partial care of any such patient shall be excluded from nursing any other obstetrical or surgical patient.

(4) Any maternity patient who is admitted to the hospital in labour or just prior to labour and who shows evidence of being infected shall be treated both before and after delivery in a room separated from other patients, and any nurse having the care or partial care of any such patient shall be excluded from nursing any other obstetrical or surgical patient.

(5) The superintendent shall within twenty-four hours of any death occurring in the hospital as a direct or indirect result of pregnancy, forward to the Minister a report of such death on the prescribed form.

INDIGENT PATIENTS

49. A consultation shall be held by two or more members of the active staff on every indigent patient who is critically ill.

50. A consultation shall be held by two or more members of the active staff on every indigent patient remaining in the hospital for more than thirty days, and thereafter at least every three weeks during the entire stay of the patient.

POST MORTEM EXAMINATIONS

51. When a post mortem examination has been performed on the body of any patient an autopsy report signed by the medical practitioner who has performed such examination shall be filed in the patient's record by the superintendent of the hospital.

HOSPITAL EMPLOYEES

52. In regulations numbered 53 to 55 an employee shall mean any person employed by the hospital who has any contact with patients or with patients' food, including internes, nurses, dietitians, pupil nurses, maids, orderlies, technicians and masseurs.

53. (1) Every employee now, or hereafter, employed in any hospital shall receive a complete physical examination upon entering the employ of the hospital and at least once each year thereafter.

(2) Every employee now, or hereafter, employed in any hospital shall receive a tuberculin test within thirty days after entering the employ of such hospital.

(3) Every employee who is deemed to have a positive tuberculin reaction shall receive an X-ray examination of the lungs within thirty days after the result of the tuberculin test is determined, and where the employee is less than 35 years of age or where the X-ray examination shows any evidence of tuberculous disease, the employee shall receive an X-ray examination of the lungs at least every year thereafter.

(4) Every such employee who is deemed to have a negative tuberculin reaction shall receive an additional tuberculin test within one year from the date of the first test, and shall receive an additional test within one year from the date of each such test where the result of the test is negative.

(5) Every employee referred to in clause (4) who is deemed on any subsequent test to have a positive tuberculin reaction shall receive an X-ray examination of the lungs within thirty days after the result of such positive reaction is determined, and where the employee is less than 35 years of age or where the X-ray examination shows any evidence of tuberculous disease, the employee shall receive an X-ray examination of the lungs at least every year thereafter.

54. Any employee who, as a result of the foregoing examinations and tests, is shown to be suffering from any condition which is likely to be communicated to any patient shall not be permitted to work in the hospital.

RECORDS OF EMPLOYEE EXAMINATIONS

55. It shall be the duty of the superintendent or other person in charge of every hospital to keep a permanent record of all examinations and tests relating to any employee of the hospital, and the superintendent shall send a copy of any such record to the superintendent of any other hospital who makes a request therefor.

NOTE:—In sending a copy of employees' records to any person the superintendent should have regard to section 9 of the Venereal Diseases Prevention Act, which reads as follows:

9. (1) Every person who, publicly or privately, verbally or in writing, directly or indirectly, states or intimates that any other person has been notified or examined or otherwise dealt with under the provisions of this Act, whether such statement or intimation is or is not true, in addition to any other penalty or liability, shall incur a penalty of \$200, and in default of immediate payment shall be imprisoned for a period of not more than three months.

(2) Subsection 1 shall not apply to disclosures made to the Department nor to disclosures made in good faith to a medical officer of health for his information in carrying out the provisions of this Act, nor to any communication or disclosures made to a legally qualified medical practitioner or in the course of consultation for treatment for venereal disease, nor to any communication made to the superintendent of any public hospital or sanatorium, nor to any communication authorized or required to be made by this Act or the regulations.

PROVINCIAL AID

56. (1) No provincial aid shall be payable for treatment of any patient admitted to a hospital who at the time of admission:

- (a) Was not a resident of Ontario;
- (b) Was a ward of the Department of Indian Affairs (Canada);
- (c) Was a person for whose maintenance the Department of Pensions and National Health (Canada) is liable;
- (d) Was a person for whose maintenance the Workmen's Compensation Board is liable;
- (e) Was a person for whose maintenance individual liability is imposed upon employers under Schedule 2 of The Workmen's Compensation Act;
- (f) Was a person for whose maintenance an employer of labour is liable under section 127 of *The Public Health Act* and the regulations passed thereunder.

(2) No provincial aid shall be payable for a patient admitted and discharged on the same day.

57. Provincial aid payable for treatment of every patient who is a baby of an indigent person, born in a hospital, and whose parent has actually resided in unorganized territory for the period of three months within the six-month period next prior to the birth of such baby shall be at the rate of \$1 per day for every day up to fourteen days after birth that such baby is receiving treatment in the hospital.

58. Where the inspector, upon investigation, is of the opinion that any patient admitted to a hospital was a person liable to be deported under the immigration laws of Canada, and that no steps were taken by the superintendent of the hospital to inform the Department of Immigration of the admission of such patient, no provincial aid shall be payable for the treatment of such patient.

59. No provincial aid shall be payable for treatment of any patient for whose treatment the hospital makes any charge for extra services in excess of one-half the rate prevailing for private or semi-private patients in such hospital, or any charge for X-rays in excess of one-half the rate for the time being set by the Workmen's Compensation Board, except where the charges for such extra services are paid by a municipality.

CONVALESCENT HOSPITALS

60. In these regulations:

- (a) "Convalescent patient" shall mean a person recovering from any surgical procedure, from exhaustive illness, from an exacerbation of a chronic debility, or from any infection which results in weakness, emaciation or anaemia, but shall not include patients recovering from any of the acute or chronic communicable diseases, unless it has been shown that such patients are no longer carriers of communicable disease, and shall include:
 - (i) Patients requiring treatment after surgical procedures;
 - (ii) Patients suffering from orthopedic disabilities;
 - (iii) Patients suffering from disabilities as the result of cardio-vascular disease;
 - (iv) Patients requiring treatment for metabolic diseases; and
 - (v) Patients requiring treatment for chronic non-communicable respiratory diseases;
- (b) "Convalescent hospital" shall mean any institution, building, or other premises or place for the treatment of convalescent patients which is under the management and control of, or is affiliated with any institution which is an approved hospital under section 3 of *The Public Hospitals Act, 1931*.

61. Unless the Minister otherwise consents in writing, patients shall be admitted to a convalescent hospital from, and only after a period of treatment in, an approved hospital or the out-patient department of such a hospital.

62. For the purpose of these regulations, except in the matter of provincial aid and municipal liability, a convalescent hospital which is under the management and control of a public hospital shall be deemed a part of such public hospital and a convalescent hospital which is not under the management and control of a public hospital, but is affiliated with a public hospital shall be deemed a public hospital.

HOSPITALS FOR INCURABLES

63. No hospital for incurables shall admit as a patient any indigent person, or the dependent of an indigent person for the charges for whose treatment a municipality may be liable, except upon the written certificate of a legally qualified medical practitioner, according to the prescribed form, that such patient is an incurable person requiring treatment in a hospital for incurables.

64. If upon investigation of the condition of any patient admitted to a hospital for incurables, the inspector obtains the advice in writing of a duly qualified medical practitioner, that such patient no longer requires to be treated in the hospital as an incurable person, he may issue a certificate in writing to such effect, and thereupon provincial aid and municipal liability shall cease in respect of any further treatment of such patient as an incurable person, until the inspector cancels the certificate issued by him hereunder.

65. All regulations heretofore approved pursuant to *The Public Hospitals Act* are hereby revoked.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 10th day of May, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that pursuant to the provisions of *The Public Hospitals Act, R.S.O. 1937, Chapter 390*, the following regulations be approved:

56a. No. Provincial aid shall be payable for treatment of any patient for whose treatment the hospital makes any charge for extra services in excess of one-half the rate prevailing for private or semi-private patients in such hospital, or any charge for X-rays in excess of one-half the rate for the time being set by the Workmen's Compensation Board.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 18th day of August, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the regulations under *The Sanatoria for Consumptives Act* approved by Order-in-Council, dated the 22nd day of June, 1938, be amended by adding thereto the following subsection:

28. (2) The amount paid by the Department under this regulation for food, lodging and necessaries shall not exceed seven dollars (\$7.00) per patient, per week.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 22nd day of June, A.D., 1938.

Under the recommendation of The Honourable the Minister of Health, the Committee of Council advise that the attached regulations made pursuant to *The Sanatoria for Consumptives Act*, be approved.

Certified,

H. A. STEWART,
Assistant Clerk, Executive Council.

June 15th, 1938.

REGULATIONS UNDER THE SANATORIA FOR CONSUMPTIVES ACT

1. In these regulations "Director" shall mean the Director of the Division of Tuberculosis Prevention of the Department of Health.

2. Every sanatorium shall be governed and managed by a board appointed or elected in accordance with the provisions of the authority whereby the sanatorium has been established, with one member appointed by the Lieutenant-Governor in Council, and the board shall have power to govern, manage and operate the sanatorium and shall be responsible for the due observance and enforcement of *The Sanatoria for Consumptives Act*, these regulations and the by-laws of the sanatorium.

3. (1) The superintendent of the sanatorium shall be responsible to the board for the due observance and enforcement of *The Sanatoria for Consumptives Act*, these regulations and the by-laws of the sanatorium, and he shall be the officer representing the sanatorium with whom the Minister, the Director, the inspectors and the other officers of the Department shall ordinarily deal with regard to sanatorium matters.

(2) Subject to the by-laws and directions of the board, the superintendent shall have control over the admission, discharge and accommodation to be furnished to patients.

4. The Director and the inspectors shall perform the duties assigned to them by the Minister or Deputy Minister and shall have power with respect to any sanatorium to:

- (a) Administer and enforce the Act and the regulations;
- (b) Inspect and make inquiries regarding the premises, management and operation;
- (c) Require that returns, reports, statements and other information relating to the sanatorium be furnished to them or to the Minister, periodically or otherwise, by the superintendent or any other officer or member of the staff of the sanatorium;
- (d) Collect and compile such information and make such reports, returns and statements as the Minister may require;
- (e) Examine and audit books, accounts, records and funds, and, where deemed necessary, remove them into the custody of the Department;
- (f) Investigate the financial condition of any person who is a patient and require information with respect to the financial condition of such person to be furnished to them by any person in possession of such information; and
- (g) Investigate any matter affecting a sanatorium or sanatoria in general and require information with respect to any such matter to be furnished to them by any person in possession of such information.

5. Every application, report, return, statement or other written communication required to be made or furnished to the Minister, Deputy Minister, inspector or Department under *The Sanatoria for Consumptives Act* or these regulations shall be addressed to the Director.

6. (1) Every sanatorium shall provide suitable accommodation for the temporary isolation of patients suspected of suffering from any communicable disease other than tuberculosis until a proper diagnosis can be made.

(2) When a patient is found to be suffering from any communicable disease other than tuberculosis, the superintendent shall take steps to isolate such patient to prevent the spread of the disease.

7. Every sanatorium shall employ such qualified medical practitioners, nurses, orderlies and other employees as are required for the treatment and care of the patients and as the Director may require.

8. The secretary of every board shall furnish to the Department, not later than the first day of November in each year, a statement of the names and addresses of the members of the board and the officers thereof, and shall give written notice to the Minister of any change therein forthwith upon its occurrence.

9. The system and forms of books, accounting and other records shall be subject to the approval of the Minister.

10. No person shall be admitted as a patient in any sanatorium without the consent of the superintendent or person acting in his place.

11. Every medical practitioner who sends any person to a sanatorium to be admitted as a patient therein shall be responsible for giving such information to the superintendent or person acting in his place as may be necessary to assure the protection of others from any such person who, by reason of any fact, may constitute a danger to other patients.

12. A clinical laboratory shall be provided in the sanatorium and special examinations which cannot be made in such laboratory shall be referred to a laboratory approved by the Minister and the reports shall become part of the patient's case record.

13. Any tissues or sections of tissues removed at operation or curettage shall be immediately set aside by the surgeon operating and shall be forwarded by the superintendent with a short history of the case and a statement of the findings at the operation to a laboratory approved by the Minister for examination, provided that any sections of nerve, bones, tooth, tonsil, frenum, hemorrhoid, finger, toe, hand, foot, arm or leg removed or amputated shall not be so forwarded unless the surgeon desires a special examination.

14. (1) Any report received from a laboratory shall become part of the patient's case record.

(2) Every report shall show the date upon which the test reported upon was performed.

15. A medical history, with result of physical examination and provisional diagnosis, shall be made in writing within fourteen days of the patient's admission to the sanatorium, shall become part of the patient's case record.

16. The board of every sanatorium shall require the medical staff, medical interne, or clinical clerks to prepare a complete medical record of every patient, including identification, complaint, present history, family history, physical examination, special reports, as reports of consultations, laboratory examinations, X-ray, provisional diagnosis, medical or surgical treatment, pathological findings, progress notes, condition and discharge and follow-up records, and in the event of death, a note as to the cause of death.

17. Within thirty days after the admission of any patient to a sanatorium the superintendent shall be responsible for sending a report of the patient's condition to the medical practitioner who referred such patient to the sanatorium.

18. No surgical operation shall be performed on any patient in a sanatorium without the consent in writing signed by the patient or his guardian, provided that where the patient is unable to give consent and where, in the opinion of the surgeon, delay would endanger the patient's life, such consent shall not be necessary.

19. A complete history, physical examination and a written pre-operative diagnosis shall be furnished by the operating surgeon or any medical practitioner authorized by him before a patient is submitted to any anaesthetic or surgical operation, provided that where the surgeon is of the opinion that the delay occasioned in obtaining such history and examination would be detrimental to the patient, he shall so state in writing and in such event the pre-operative diagnosis shall be furnished in writing and signed by the operating surgeon.

20. Every operation performed in a sanatorium shall be fully described in writing by the surgeon or any medical practitioner authorized by him and such written description shall form part of the patient's record.

21. Every anaesthetist shall furnish a record showing the type of anesthetic given, amount used, length of anaesthesia and the condition of the patient following the operation.

22. When a post-mortem examination has been performed on the body of any patient, an autopsy report signed by the medical practitioner who has performed such examination shall be filed in the patient's record by the superintendent of the sanatorium.

23. No provincial aid shall be payable for treatment of any patient admitted to a sanatorium who at the time of admission:

- (a) Was not a resident of Ontario;
- (b) Was a ward of the Department of Indian Affairs (Canada);
- (c) Was a person for whose maintenance the Department of Pensions and National Health (Canada) is liable;
- (d) Was a person for whose maintenance the Workmen's Compensation Board is liable;
- (e) Was a person for whose maintenance individual liability is imposed upon employers under Schedule 2 of *The Workmen's Compensation Act*.

24. Where a Director or an inspector upon investigation, is of the opinion that any patient admitted to a sanatorium was a person liable to be deported under the immigration laws of Canada, and that no steps were taken by the superintendent of the sanatorium to inform the Department of Immigration of the admission of such patient, no provincial aid shall be payable for the treatment of such patient.

25. The Department may pay provincial aid to a sanatorium for the treatment of every patient at the rate of \$2.07 ½ for each day that such patient received treatment in the sanatorium.

26. A sanatorium may charge any patient an amount not exceeding \$3.00 per day for every day such patient receives treatment in the sanatorium.

27. The Department may pay provincial aid for every baby born in a sanatorium at the rate of \$1.00 per day for every day up to three months after birth that such baby is in the sanatorium.

28. The Department may provide and pay for the treatment including food, lodging, necessities of life, and transportation, outside a sanatorium of any patient without municipal residence who has recovered to such an extent that in the opinion of the Director or an inspector he is fit to be discharged.

29. (1) The Department may pay an amount not exceeding \$3.00 to any medical practitioner for each pneumothorax treatment authorized by the Director and performed upon a patient without municipal residence.

(2) The Department may reimburse any municipality which has paid a medical practitioner, sanatorium clinic or hospital clinic approved by the Director, for any such treatment at a rate not exceeding \$3.00 for each treatment.

(3) In the case of a hospital clinic, the physician in charge shall indicate to the appropriate officer of the municipality the manner in which remuneration is to be made to the members of his staff who are associated in the pneumothorax treatment.

(4) Each physician or clinic using hospital facilities for pneumothorax treatments, shall make all necessary arrangements with the hospital.

(6) In this regulation any fee paid for a pneumothorax treatment shall include the remuneration payable for any necessary fluoroscopic examination.

30. Upon admission to a sanatorium of any patient, the superintendent shall by registered letter notify the clerk of the local municipality in which such patient is or is represented to be a resident, of such admission, giving such particulars as may be ascertainable to enable the clerk to identify the patient.

THE LIBRARY OF THE DEPARTMENT OF HEALTH

FREDRITA HENLEY WRIGHT, *Librarian.*

The past year again has shown an increase in appreciation of the services of the Central Library. Especially is this so with regard to the staffs of the Ontario Hospitals where there has been an increase of 495 loans over the previous year.

The Central Library, in its accessions, again paid special attention to the sections on Mental Disease, Psychology and Mental Hygiene. The requests for loans received from the Ontario Hospitals amply justified this effort.

ACCESSIONS

During 1938 the following accessions were made:

Central Library

Books purchased.....	95
Journals.....	156 (vols.)
Reports.....	116
Pamphlets.....	1,411
Total.....	1,778

The subscriptions to journals for the year were 106 while the Library received 17 complimentary subscriptions, a total of 123.

Ontario Hospitals

Books purchased	
Medical.....	53
Fiction	
New.....	96
Library discards.....	1,224
Journals (sub'ns.).....	114
Periodicals	
New (sub'ns.).....	165
Unsold (copies).....	8,100
Newspapers (sub'ns.).....	166
Total... ..	9,918

The system of maintaining a central catalogue of books in the Ontario Hospitals was continued. All purchases were catalogued in the Central Library and forwarded to the hospitals together with cards for the hospital catalogue.

LOAN SERVICE

There were 4,947 loans made by the Library in comparison with 2,964 for the previous year. Within the immediate department there were 3,763 for 1938 while the number for 1937 was 2,413. For the outside service, including the Ontario Hospitals, there were 1,184 for 1938 while for 1937 there were 551.

In addition to library loans the regular monthly service was continued whereby journals on tuberculosis were circulated to the clinicians in charge of the Provincial Travelling Chest Clinics at North Bay, Belleville, Ottawa, Fort William and Timmins and to the Tuberculosis Unit at the Ontario Hospital, New Toronto. The clinics at Fort William and Timmins were added during 1938 thus making the service include 6 clinics in place of 4 during 1937. Medical journals were also circulated to Branch Laboratories at North Bay, Fort William, Sault Ste. Marie, Peterboro and Ottawa while "Public Health Nursing" and "Parents" were sent to the Eastern Ontario Health Unit.

During the year a further service was extended by the Central Library by which articles on metrazol and cardiazol in the treatment of schizophrenia were circulated to seven Ontario Hospitals.

SUMMER COURSE IN HEALTH TEACHING

The Library again contributed to the special library compiled for the use of the teachers enrolled for the Summer Course in Health Teaching. This special library is of considerable help to the students and is much appreciated by them. The attendance at the 1938 session was 306 teachers from the schools of the Province.

LIBRARY BULLETIN

Publication of the Library Bulletin continued during the year. This Bulletin consists of a bibliography of articles of interest on all aspects of departmental work appearing each month in the library journals. Starting with the July-August number a "News Sheet," to appear quarterly, was added. This was introduced in order to familiarize members of the staff of the department with new work being undertaken by the various divisions; with matters of departmental policy; and with new publications issued by the department.

PATIENTS' LIBRARIES

The Central Library purchased a total of 96 new books and 1,224 library discards to be added to the patients' libraries in the Ontario Hospitals. There were also delivered, through special arrangement with a Toronto news agency, 8,100 copies of unsold periodicals and in addition the Library re-shipped 5,200 copies of newspapers which were donated to the Ontario Hospitals through the kindness of Toronto publishers.

ONTARIO HEALTH OFFICERS' CONVENTION

For the period of the convention of Ontario Health Officers, held at the Royal York Hotel, Toronto, from June 1-3, 1938, the Library presented an exhibit of books of interest to the doctors in their capacity as Medical Officers of Health. The exhibit comprised texts from the Central Library and new publications loaned by Toronto publishers for the occasion. Also included in the exhibit was a sample set of all literature distributed by the department. From this set supplies were selected by the Health Officers, which were later mailed to them. The exhibit created considerable interest.

In addition to the above activities there has been the regular library procedure of cataloguing and reference work comprising the daily routine.

DIVISION OF PREVENTABLE DISEASES

A. L. MCKAY, B.A., M.B., D.P.H., *Director.*

Of the 31 communicable diseases reported through the local Boards of Health only 9 have shown an increase in the number of cases reported, as compared with 1937. An increase was noted in Dysentery, Tuberculosis and Measles. The number of cases of Gonorrhoea reported shows a 20% increase, while in Syphilis the increase was 24%. The increased number of cases reported for these two diseases is probably accounted for by the fact that during the past year more advantage has been taken by municipalities of the increased financial assistance given by the Department.

There was an increase in the number of Whooping Cough cases reported, and the number reported was only 4% lower than the number reported during the peak year of 1936.

Infectious Jaundice reached epidemic proportions in many municipalities during the year. The greater number of cases, however, were reported during the last three months. There were no fatalities attributed to this disease but the loss of school attendance was quite marked. Epidemiological investigations were made and are still proceeding.

There were no municipal outbreaks caused from water or milk during the year and there was a reduction of 21.5% in the total number of communicable diseases reported for the year as over the corresponding year of 1937.

Typhoid Fever

Year	Cases	Morbidity Rates	Deaths Reg. Gen.	Mortality Rates
1934	547	15	45	1.2
1935	310	8.6	41	1.1
1936	251	6.7	39	1.0
1937	241	6.4	27	0.7
1938	235	6.2	34	0.9

During the past five years Typhoid Fever morbidity rates have decreased steadily in the Province of Ontario. The year ending 1938 reached an all time low of 6.2 per 100,000. During the whole year the endemic index for each month was well within the range, with only one exception, that of April, when 10 cases more than expected occurred.

These cases were located as follows: Five in Plantagenet, three at Hearst, and two at Kapuskasing. The Plantagenet cases were investigated by the Eastern County Health Unit, and the cases at Hearst and Kapuskasing on investigation were found to be due to the drinking of contaminated river water outside the town. Investigation into the cause of Typhoid Fever was carried on at Latchford, Port Arthur, and the Townships of Wainfleet, Louth, Charlotteville, South Walsingham. While no serious outbreaks had occurred during the year sporadic cases had frequently appeared in these various places in Southern Ontario. In all instances, not more than one or two cases were re-

ported at any one time. On investigation it was found that cases could be traced to a mild undiagnosed case (one instance), a carrier, unknown at the time, and drinking contaminated rural water.

Typhoid Fever has been more or less endemic in two counties in Ontario during the past five years, while no serious outbreaks have occurred as yet, it would be very advisable to make a sanitary and combined carrier survey in one of these counties during the summer of 1939.

Para-Typhoid Fever

Year	Cases	Morbidity Rate	Deaths
1934	88	2	2
1935	58	1	0
1936	59	1	3
1937	80	2	5
1938	68	1	0

The morbidity rate of Para-Typhoid during the past five years shows a median of 1. There have been no serious outbreaks of this disease in the Province during the past year, and all the cases reported were single cases with no exceptions—one outbreak of 4 cases was traced to an undiagnosed mild case, and in another of similar proportions a carrier was found.

The cases were scattered throughout the province from Fort William and Larder Lake in the north and Brockville to Windsor in the southerly part of the Province,—only one outbreak of food poisoning was reported during the past year. This small outbreak, 2 families, was caused through consuming creamed pastries, contaminated with staphylococcus organisms.

Infectious Jaundice

Year	Cases
1934	6
1935	10
1936	46
1937	89
1938	701

701 cases of Infectious Jaundice were reported during 1938. This disease reached epidemic proportions during the past year, although cases have been reported in Ontario as far back as 1930. The disease this past year was widespread throughout the province, though not as an epidemic in all cases reporting it. The disease as such, where it has occurred, had caused no fatalities in the province. It has appeared in epidemic proportions in Ottawa, London, Bidulph, Kitchener, Kingston, Teck and Brantford, while 30 other municipalities have reported 4 to 30 cases.

Three forms of infectious jaundice have been recognized—Catarrhal Jaundice, Weil's disease—(*Leptospira-icterohaemorrhagiae*) and *Letospira Cuniculi*. Dogs, of course, have been known to have become infected through rats that carry the *Leptospira Icterohaemorrhagiae*. Many of the cases were reported in the early fall and continued through to December. In some outbreaks the *Leptospira* was ruled out on examination of the blood and urine. At the present an investigation of the disease is being carried out. The disease most frequently attacks those in the 5-14 age group. Very few adults or young children 0-4 have been reported as contracting the disease, thus far.

Undulant Fever

Year	Cases	Morbidity Rate	Deaths
1934	97	2.7	3
1935	85	2.4	5
1936	127	3.1	2
1937	104	2.7	7
1938	101	2.	3

101 cases of Undulant Fever were reported during 1938. In single cases, they were distributed throughout all parts of the province, few counties or districts being exempt. They were reported during all months of the year, but with a higher frequency during a period from March to July. The morbidity rates are somewhat higher than the rates as compared with Para-Typhoid. The median for Undulant Fever during the past five years is 2.5 compared with 1 as in Pari-Typhoid.

Cerebro-Spinal Meningitis

Years	Cases	Morbidity Rate
1934	35	.9
1935	32	.8
1936	52	1.
1937	67	1.8
1938	88	2.3

There has been a marked increase in the number of cases of Cerebro-Spinal Meningitis (men) as reported in the province. This increase has not been common to this province, but has been recognized generally over the North American continent during the past few years. There was a 31.1% increase in the cases reported in 1938 as compared with 1937.

Poliomyelitis

Years	Cases	Morbidity Rate
1934	326	8
1935	108	3
1936	208	5.6
1937	2546	68.
1938	160	4.5

Poliomyelitis in 1938 remained well within the endemic index, and comparable with the number of cases 161 in 1931—following the 1929-30 epidemic years.

Smallpox

Year	Cases	Morbidity Rate
1934	1	0.02
1935	7	0.1
1936	1	0.02
1937	0	0.
1938	6	0.1

Smallpox—During the last five years the morbidity rate has been less than 1. Six cases of smallpox were reported in 1938. Many of the suspected smallpox cases were visited and a diagnosis of chickenpox was made; others had been exposed to Herpes and developed a rash very similar to smallpox.

Diphtheria

Year	Cases	Morbidity Rate	Deaths	Mortality Rate
1934	371	10	23	.6
1935	361	10	37	1.2
1936	290	7	31	.8
1937	506	13	39	1.5
1938	234	6	12	0.3

During the past five years the morbidity rate for Diphtheria has steadily declined and in 1938 the rate dropped to a new low of 6 per 100,000. Diphtheria was reported from all the cities in the province with the exception of seven. Cases were reported throughout the northern and southern sections of the province. Outbreaks of Diphtheria in municipalities were comparatively few. However, there is no reason to believe that they cannot occur. They are possible in municipalities where immunization has been neglected and also in municipalities where immunization has never been carried out. In one such municipality in 1937 over 36 cases and 5 deaths had occurred.

Active immunization against Diphtheria and Smallpox was carried out throughout northern Ontario in 1938 and 20,034 children received Diphtheria Toxoid and were vaccinated against Smallpox. This work was carried out in all schools, situated in municipalities without municipal organization. The arrangements were made through the co-operation of the Department of Education, the school teacher and the physicians practising in the vicinity. The latter being paid by the Department of Health. Pre-school children were also included in this campaign.

Whooping Cough

Year	Cases	Morbidity Rate	Deaths	Mortality Rate
1934	7624	214	184	5.1
1935	7663	213	114	3.1
1936	7890	213	99	2.9
1937	5040	135	106	2.8
1938	7567	200	77	2.

The morbidity rates for Whooping Cough have been fairly constant during the past five years—with the exception of 1937; the mean morbidity rate for this period was 180. In 1938, an increase of 48.1% is shown in the rate as compared with the previous year.

Whooping Cough was reported during the past year from all but one district and two counties but there is reason to believe it had occurred in these places. Whooping Cough was more prevalent in cities and towns but less so in rural areas. The mortality rate for 1938 was 2 per 100,000. (This is only a tentative rate for the year). The case fatality rate was 1.1%. Whooping Cough remained well within the median for the year with the exception of the last three months, when an increase occurred in the number of cases reported.

Scarlet Fever

Year	Cases	Morbidity Rate
1934	6057	168
1935	7265	201
1936	8927	247
1937	5581	154
1938	5359	144

The morbidity rate for Scarlet Fever has shown a decrease over the past five years, the rate for 1938 being 70% lower than the rate for the year 1936. The cases reported by month were all within the number of cases expected. However, in December an increase was observed, which, in all probability will be continued well into 1939.

Measles

Year	Cases	Morbidity Rate
1934	2,392	66
1935	44,958	1256
1936	26,429	716
1937	13,809	426
1938	16,595	445

Measles remained well within the median each month during the year with the exception of December—when 73.2% increase in the number of cases developed. The last epidemic of measles occurred in 1935. 1939 is regarded as an epidemic year.

Venereal Disease Control

During the year the nineteen venereal disease clinics operated by the Department have continued as in the past. There has been an increase in the number of new cases who had never previously been treated in the clinics, but the total number of patients under treatment remained approximately the same. The number of treatments administered was increased by more than 5 per cent. over the previous year. There were 419 cases of primary and secondary syphilis admitted to the clinics, which was an increase of 78 over the previous year's experience. 2162 patients were discharged from the clinics as apparently cured, and it may also be noted that fewer patients were discharged from the clinics without permission, although this still remains at the disquieting figure of 1348. During the year 768 patients had to be referred to the medical Officer of Health for non-attendance and were followed up under authority of the Act. It was found necessary to prosecute only 26 patients for contravention of *The Venereal Diseases Prevention Act*, which indicates the efficiency and tact of the social service nurses in the follow up of the patients under their charge.

The treatment of patients in municipalities without clinic facilities increased considerably during the year. It was found possible to further reduce the burden on the municipalities by increasing the financial assistance given by the Division from 50 to 75 per cent. of the cost of treatment, based on a set schedule of fees. This resulted in a greater number of municipalities assuming their statutory responsibility in this regard and a consequent increase in the number of patients under treatment.

Sulphanilamide and stovarsol have now been made available for treatment in all of the clinics at the expense of the Department.

A summary of the work in the clinics follows:

Treatment for Syphilis:

Diarsenol.....	1,883
Novarsan.....	16,978
Mapharsen.....	14,805
Tryparsamide.....	1,709
Other arsenicals.....	5,244
Mercury.....	2,281
Bismuth.....	42,421
Medicines.....	8,456
Other and advice.....	4,461
Thiosulphite.....	245

Treatment for Gonorrhoea:

Irrigations.....	49,889
Douche.....	1,055
Injections.....	7,807
Prostatic Massage.....	8,702
Instrumentation.....	1,464
Deep Instillation.....	1,948
Topical Application.....	8,606
Vaccine.....	1,116
Examinations.....	4,125
Medicines.....	7,697
Total.....	190,892

Drugs for the free treatment of venereal disease were distributed as follows:

	Ampoules	Grams.
Diarsenol.....	514	659.8
Novarsan.....	44,311	36,319.03
Mapharsen.....	9,036	1,007.08
Bismuth Oxychloride.....	40,747	168,798 grs.
Mercury Salicylate.....	5,174	8,678 grs.
Sodium Hydroxide.....	.....	152 ounces
Distilled Water.....	.....	61,984 ounces

Correspondence has been carried out for follow-up through the medical officers of health of contacts, sources of infection and removals from one municipality to another as follows:

Total number of patients and contacts followed up.....	802
Receiving treatment or found to be negative.....	344
Lost—including no reply from M.O.H.....	166
Doubtful cases—as to whether or not under treatment.....	68

Sources of Infection:

Positive.....	22
Negative.....	22
Lost.....	23
Total.....	67

Number of contacts of neurosyphilitic patients in Ontario Mental Hospitals;	
Negative.....	66
Positive.....	9
Lost or refused examination.....	16

Total.....	91
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Number carried over to 1939.....	133
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Summary of Clinic Activities:

1. Number examined and found positive.....	3,510
2. Number carried over from previous year.....	6,065
3. Number of new cases (never previously treated in clinic).....	2,708
4. Number of cases readmitted.....	931
5. Number of previously treated patients.....	736
6. Number of cases treated.....	10,392
7. Number of treatments.....	155,835
8. Number of contacts and sources examined.....	910
9. Number of visits made by nurses.....	5,745

Number of cases treated (Total).....	10,392
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New cases (Never previously treated in clinic).....	2,708
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	Male	Female
Syphilis.....	590	367
Gonorrhoea.....	1,267	409
D.I.....	39	36

Number of cases re-admitted.....	931
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	Male	Female	
Syphilis.	280	141	
Gonorrhoea.	358	75	
Double Infection.	51	13	
Number of patients previously treated.			736
	Male	Female	
Syphilis.	282	141	
Gonorrhoea.	213	75	
Double Infection.	12	13	
Number of new cases Syphilis classified.			1,333
	Male	Female	
Primary.	167	67	
Secondary.	87	98	
Tertiary.	587	327	
New cases of Gonorrhoea.			2,177
	Male	Female	
1. Under 1 month.	1,250	203	
2. Under 2 months.	161	148	
3. Over 2 months.	230	185	
Number of paid treatments classified.			155,835
	Male	Female	
Syphilis.	54,851	36,461	
Gonorrhoea.	51,973	12,550	
Number of Contacts and Sources examined.			910
Positive for Syphilis.	114		
Positive for Gonorrhoea.	86		
Number of Children treatments.			4,619
	Male	Female	
Syphilis.	1,911	1,536	
Gonorrhoea.	33	1,139	
Number discharged from clinics.			4,335
Number discharged apparently cured.			2,162
	Male	Female	
Syphilis.	410	261	
Gonorrhoea.	1,001	387	
Double Infection.	62	41	
Number transferred.			825
	Male	Female	
Syphilis.	263	164	
Gonorrhoea.	255	103	
Double Infection.	23	17	
Number discharged without permission.			1,348
	Male	Female	
Syphilis.	460	247	
Gonorrhoea.	454	128	
Double Infection.	29	30	
Social Histories taken in clinics.			3,794
Cases referred by: Doctors, 835; self, 1,318; friends, 182; hospitals, 377; other clinics, 494; social agency, 84, Department of Health, 202; jails, 47; re-admissions, 224; police, 31; posters, 0.			
Number of cases referred to M.O. H.			1,080

Source.	180	
Contact.	114	
Non-attendance.	786	
Number of cases placed under V.D. Act.		106
Number of cases prosecuted under V.D. Act.		26
Analysis by Age Groups of New Admissions.		3,292
	Male	Female
Under 16 years.	26	50
16-19 years.	168	164
20-29 years.	1,056	407
30-39 years.	579	176
Over 40 years.	538	128
Number of visits of Social Service Nurses.		5,745
Number of patients treated in hospitals where clinics are situated.		923
	Male	Female
Syphilis.	138	232
Gonorrhoea.	277	276
Number of days in hospital.		11,002
	Male	Female
Syphilis:		
Blood.	5,435	8,721
Cerebro Spinal fluid.	100	294
Darkfield.	62	103
Gonorrhoea:		
Diagnosis.	2,271	6,128
Prognosis.	2,637	5,068

STATEMENT OF COMMUNICABLE DISEASES IN 1938

	Smallpox		Scarlet Fever		Diphtheria		Measles		Whooping Cough		Typhoid Fever		Tuberculosis		Poliomyelitis		Cerebro-Spin- al Meningitis (Men'gococ's)		Influenza		Pneumonia	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1938																						
January.....	0	0	710	2	27	3	1,205	0	318	1	12	4	210	42	2	0	6	1	221	9	157	332
February.....	0	0	620	5	25	0	924	0	335	1	6	2	184	27	1	0	5	1	115	2	139	175
March.....	0	0	456	5	28	1	1,579	0	435	0	10	0	220	43	1	1	10	4	71	4	117	178
April.....	0	0	505	3	15	0	2,359	1	426	2	24	3	278	47	1	0	15	5	240	0	140	234
May.....	0	0	314	2	8	1	2,216	3	413	2	14	0	230	46	4	0	8	2	80	1	158	186
June.....	0	0	330	1	11	0	2,979	1	635	2	13	1	223	49	9	2	10	1	4	3	84	166
July.....	0	0	212	4	22	0	1,549	1	738	1	11	6	175	39	25	4	6	1	29	0	75	129
August.....	0	0	114	0	13	0	199	0	648	6	26	2	205	40	51	5	0	1	48	2	31	102
September	0	0	177	2	12	0	76	0	681	4	33	3	181	41	32	3	4	2	34	3	27	95
October.....	1	0	456	3	34	0	253	0	652	2	25	4	223	47	22	2	6	3	43	3	65	178
November.....	2	0	565	5	17	1	808	0	1,044	5	37	3	199	37	9	0	11	0	27	1	132	161
December.....	3	0	900	3	22	0	2,459	0	1,244	6	24	3	192	47	3	1	7	1	31	3	96	249
1938 Total.....	6	0	5,359	35	234	6	16,606	6	7,569	32	235	31	2,520	505	160	18	88	22	943	31	1,221	2,185
1937 Total.....	0	0	5,581	27	506	29	15,809	5	5,040	9	241	17	2,371	525	2,544	109	67	27	13,330	185	1,020	2,585
1936 Total.....	0	0	8,927	41	290	8	26,429	18	7,890	29	251	27	2,277	554	208	12	52	38	1,869	53	788	2,116

STATEMENT OF COMMUNICABLE DISEASES IN 1928—Continued

	Syphilis		Gonorrhoea		Chickenpox		Encephalitis		German Measles		Mumps		Septic Sore Throat		Undulant Fever		Dysentery		Erysipelas		Paratyphoid Fever		Jaundice	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1938																								
January.....	221	5	381	0	1,581	0	0	0	53	0	567	0	7	1	7	0	1	0	14	1	13	0	31	1
February.....	219	2	334	0	1,086	0	3	0	67	0	644	0	1	0	6	0	5	0	9	1	1	0	24	0
March.....	280	3	264	0	1,005	0	1	1	67	0	683	0	3	0	6	0	2	0	9	1	2	0	68	0
April.....	302	4	306	0	1,211	0	0	2	161	0	807	0	24	2	14	0	4	0	12	2	1	0	249	0
May.....	185	3	217	0	866	0	1	0	81	0	507	0	25	0	10	0	2	0	8	2	1	0	15	0
June.....	202	6	274	0	1,267	0	2	1	74	0	343	0	14	1	12	0	1	0	8	0	6	0	14	0
July.....	232	8	387	0	743	0	2	2	70	0	105	0	8	0	11	0	5	0	11	1	1	0	16	0
August.....	196	5	372	1	159	0	1	0	21	0	45	0	3	1	7	0	2	1	4	0	12	0	5	0
September.....	252	1	407	0	101	0	0	1	18	0	33	0	2	1	7	0	48	4	10	2	14	0	0	0
October.....	356	4	473	0	489	0	0	0	40	0	62	0	4	0	8	0	47	1	11	0	6	0	34	0
November.....	264	1	367	0	957	1	1	1	77	0	90	0	11	0	6	0	28	2	10	0	5	0	150	1
December.....	301	5	406	0	1,416	0	0	0	138	0	232	0	11	0	3	0	17	0	22	0	6	0	95	0
1938 Total ...	3,010	47	4,188	1	10,881	0	11	8	867	0	4,119	0	113	6	97	0	162	8	128	10	68	0	701	2
1937 Total ...	2,415	23	3,481	1	11,795	1	11	11	913	0	9,696	0	244	12	104	0	103	9	139	11	80	2	89	2
1936 Total ...	2,000	15	2,738	0	11,301	1	12	18	29,351	4	13,699	1	160	19	127	2	91	2	168	18	59	1	46	2

STATEMENT

BIOLOGICAL PRODUCTS AND INSULIN

APRIL 1st, 1937, TO MARCH 31st, 1938

SUMMARY 1937-1938

DIPHTHERIA:

Antitoxin.....	4,401 M units at.....	\$0.14 per M units.....	\$ 616 14
Schick Test.....	67,090 M units at.....	.12 per M units.....	8,050 80
Toxoid.....	4,840 outfits at.....	.20 each.....	968 00
			\$ 8,666 94
	16,763 x 1 person at.....	.20 each.....	\$ 3,352 60
	2,814 x 6 persons at.....	.80 each.....	2,251 20
	8,677 x 12 persons at.....	1.00 each.....	8,677 00
	574 Diluted at.....	.20 each.....	114 80
			\$ 15,363 30
			\$ 24,030 54

TETANUS:

Antitoxin.....	80,870,500 units at.....	.30 per M units.....	\$ 24,261 15
Intraspinal Outfits.....	177 outfits at.....	.45 each.....	79 65
			24,340 80

SCARLET FEVER:

Antitoxin.....	10,259 prophylactic doses at... .75 each.....	7,694 25
	5,212 treatment doses at..... 2.75 each.....	14,333 00
		<u>\$ 22,027 25</u>
Dick Test.....	5,656 outfits at..... .20 each.....	1,131 20
Toxin.....	6,091 x 1 person at..... .30 each.....	1,827 30
	4,952 x 6 persons..... 1.00 each.....	4,952 00
		<u>\$ 7,910 50</u>
		<u>29,937 50</u>

ANTI-MENINGOCOCCUS:

Serum.....	1,734 x 20 cc vials at.....	1.00 each.....	\$ 1,734 00
Intraspinal Outfits.....	287 at.....	.45 each.....	129 15
			\$ 1,863 15

STATEMENT OF BIOLOGICAL PRODUCTS AND INSULIN SUMMARY—Continued

SMALLPOX:				
Vaccine.....	6,899 x 2 point packages at... .12 per package.....	\$ 827 88		
	104,365 points at..... 4.4 per point.....	4,696 41		
		<u>4,696 41</u>		5,524 29
RABIES:				
Vaccine.....	48 treatments.....10.50 each.....		504 00	
ANTI-ANTHRAX:				
Serum.....	3 x 50 cc vials at..... 1.75 each		7 25	
	1 x 20 cc vials..... 2.00 each.....			
TYPHOID-PARATYPHOID:				
Vaccine.....	600 x 10 cc vials..... .36 each.....		216 00	
	TOTAL COST OF BIOLOGICAL PRODUCTS.....		\$ 86,423 78	
INSULIN.....				
	17,255 x 200 units vials at..... .40 per vial.....	\$ 6,902 00		
	54,152 x 400 units vials at..... .70 per vial.....	37,906 40		
	3,436 x 800 units vials at..... 1.30 per vial.....	4,466 80		
	15,462 Protamine Zinc at..... .72½ per vial.....	11,209 92		
	TOTAL COST OF INSULIN.....	<u>60,485 12</u>	\$	60,485 12
	TOTAL COST OF BIOLOGICAL PRODUCTS AND INSULIN	<u>\$ 146,908 90</u>	\$	146,908 90

STATEMENT OF BIOLOGICAL PRODUCTS AND INSULIN—Continued

MONTH	DIPHTHERIA ANTITOXIN					DIPHTHERIA TOXOID								
	1M and 5M Units	Cost	10M 20M 40M Units	Cost	Syringes	Cost	One Person	Cost	Six Persons	Cost	Twelve Persons	Cost	Diluted	Cost
1937	M	\$ C	M	\$ C		\$ C		\$ C		\$ C		\$ C		\$ C
April.....	367	51 38	5,130	615 60	6	1 20	1,621	324 20	317	253 60	598	598 00	40	8 00
May.....	177	24 78	3,520	422 40	36	7 20	1,224	244 80	151	120 80	486	486 00	53	10 60
June.....	334	46 76	4,670	560 40	50	10 00	1,466	293 20	116	92 80	357	357 00	36	7 20
July.....	618	86 52	9,460	1,135 20	100	20 00	1,158	231 60	106	84 80	309	309 00	30	6 00
August.....	267	37 38	6,500	780 00	49	9 80	1,033	206 60	54	43 20	475	475 00	36	7 20
September....	342	47 88	4,250	510 00	5	1 00	1,753	350 60	394	315 20	684	684 00	73	14 60
October.....	393	55 02	6,290	754 80	75	15 00	1,463	292 60	465	372 00	1,467	1,467 00	43	8 60
November...	613	85 82	4,980	597 60	5	1 00	1,550	310 00	356	284 80	916	916 00	34	6 80
December....	274	38 36	8,410	1,009 20	174	34 80	1,128	225 60	110	88 00	533	533 00	27	5 40
1938														
January.....	385	53 90	4,250	510 00	24	4 80	1,348	269 60	313	150 40	991	991 00	73	14 60
February....	244	34 16	6,130	735 60	66	13 20	1,140	228 00	161	128 80	773	773 00	54	10 80
March.....	387	54 18	3,500	420 00	100	20 00	1,879	375 80	271	216 80	1,088	1,088 00	75	15 00
	4,401	616 14	67,090	8,050 80	690	138 00	16,763	3,352 60	2,814	2,251 20	8,677	8,677 00	574	114 80

STATEMENT OF BIOLOGICAL PRODUCTS AND INSULIN—Continued

MONTH	DIPHTHERIA SCHICK TEST		TETANUS ANTITOXIN			
	Outfits	Cost	Units	Cost	Syringes	Cost
1937		\$ C		\$ C		\$ C
	480	96 00	4,440,000	1,332 00	212	42 40
	435	87 00	6,806,000	2,041 80	187	37 40
	224	44 80	9,906,000	2,971 80	210	42 00
	387	77 40	10,671,500	3,201 45	435	87 00
	202	40 40	8,253,500	2,476 05	236	47 20
	440	88 00	11,489,500	3,446 85	240	48 00
	332	66 40	6,759,000	2,027 70	292	58 40
	469	93 80	5,526,500	1,657 95	162	32 40
	442	88 40	4,252,000	1,270 60	187	37 40
1938						
	397	79 40	4,165,000	1,249 50	124	24 80
	464	92 80	3,924,500	1,177 35	200	40 00
	568	113 60	4,667,000	1,400 10	125	25 00
	4,840	968 00	80,870,500	24,261 15	2,610	522 00
					177	79 65

STATEMENT OF BIOLOGICAL PRODUCTS AND INSULIN—Continued

	SCARLET FEVER ANTITOXIN					DICK TEST		SCARLET FEVER TOXIN			
	Prophy-lactic	Cost	Treat-ments	Cost	Syringes	Dick Test	Cost	One Person	Cost	Six Persons	Cost
1937											
April.....	956	\$ 717 00	599	\$ 1,647 25	111	443	\$ 88 60	430	\$ 129 00	618	\$ 618 00
May.....	805	603 75	519	1,427 25	100	375	75 00	467	140 10	391	391 00
June.....	802	601 50	336	924 00	50	411	82 20	418	125 40	124	124 00
July.....	846	634 50	219	602 25	50	361	72 20	397	119 10	262	262 00
August.....	763	572 25	402	1,105 50	.....	177	35 40	422	126 60	181	181 00
September.....	567	425 25	236	649 00	50	477	95 40	535	160 50	437	437 00
October.....	903	677 25	419	1,152 25	.....	410	82 00	489	146 70	614	614 00
November.....	1,167	875 25	738	2,029 50	50	597	119 40	535	160 50	353	353 00
December.....	871	653 25	465	1,278 75	8	386	77 20	428	128 40	363	363 00
1938											
January.....	924	693 00	388	1,067 00	125	877	175 40	774	232 20	765	765 00
February.....	956	717 00	584	1,606 00	100	504	100 80	650	195 00	614	614 00
March.....	699	524 25	307	844 25	100	638	127 60	546	163 80	230	230 00
	10,259	7,694 25	5,212	14,333 00	744	5,656	1,131 20	6,091	1,827 30	4,952	4,952 00

STATEMENT OF BIOLOGICAL PRODUCTS AND INSULIN—Continued

MONTH	ANTI-MENINGOCOCCUS SERUM			SMALLPOX VACCINE			Rabies		Anti-Anthrax Vaccine		Typhoid Paratyphoid	
	20cc Vials	Cost	Outfits	Cost	2 Point Packages	5 and 10 Point Packages	Treatments	Cost	Vials	Cost	Vials	Cost
1937												
April.....	96	\$ 96 00	10	\$ 4 50	553	15,385	....	\$ 692 32	....	\$ .....	....	\$ .....
May.....	103	103 00	33	14 85	621	9,975	4	448 87	2	3 50	....	....
June.....	183	183 00	20	9 00	775	7,260	3	326 70	....	....	....	....
July.....	134	134 00	27	12 15	383	5,620	2	252 90	1	2 00	....	....
August.....	63	63 00	14	6 30	648	8,830	11	397 35	....	....	....	....
September.....	134	134 00	24	10 80	996	13,370	....	601 65	....	....	....	....
October.....	118	118 00	14	6 30	503	7,290	1	328 05	1	1 75	....	....
November.....	235	235 00	26	11 70	494	7,630	2	343 35	....	....	....	....
December.....	100	100 00	12	5 40	324	4,250	19	191 25	....	....	....	....
1938												
January.....	184	184 00	40	18 00	596	9,985	3	449 32	....	....	500	180 00
February.....	114	114 00	28	12 60	445	6,750	....	303 75	....	....	100	36 00
March.....	270	270 00	39	17 55	561	8,020	3	360 90	....	....	....	....
	1,734	1,734 00	287	129 15	6,899	104,365	48	4,696 41	4	7 25	600	216 00

STATEMENT OF BIOLOGICAL PRODUCTS AND INSULIN—Continued

MONTH	INSULIN				Protamine Zinc	Cost
	200 Units	400 Units	800 Units	Units		
1937						
April.....	2,050	6,050	315	750	5,008 25	
May.....	1,630	5,296	364	975	5,539 27	
June.....	1,575	3,591	175	1,190	4,233 95	
July.....	1,325	4,490	215	1,175	4,804 38	
August.....	1,350	4,550	170	1,105	4,747 12	
September.....	1,175	3,675	235	1,395	4,359 37	\$ 87,232 58
October.....	1,575	3,950	277	1,010	4,487 35	808 80
November.....	950	3,650	305	1,587	4,482 07	
December.....	1,075	5,050	285	1,745	5,600 62	Net Cost.....\$ 86,423 78
1938						Insulin.....60,485 12
January.....	1,550	4,625	385	1,725	5,608 62	
February.....	1,250	4,725	290	1,725	5,435 12	Total Cost.....\$ 146,908 90
March.....	1,750	4,500	420	1,080	5,179 00	
	17,255	54,152	3,436	15,462	60,485 12	
SUMMARY						
Biological Products.....						\$ 87,232 58
Less Syringes.....						808 80
Net Cost.....						\$ 86,423 78
Insulin.....						60,485 12
Total Cost.....						\$ 146,908 90

DIVISION OF MATERNAL AND CHILD HYGIENE

J. T. PHAIR, M.B., D.P.H., *Director.*

Maternal Care.

Despite the fact that there is an appreciable though small decline (from 5.6 in 1936 to 5.2 in 1937) in the maternal death rate for the Province, the number of women dying each year as the direct or indirect result of pregnancy still presents a challenge to both the public and profession alike. It must be borne in mind, however, that though this aforementioned decline in the mortality rate is not as striking as might be hoped for, the increasing completeness and accuracy of certification of deaths associated with pregnancy is undoubtedly responsible for the re-allocation of deaths to this category which hitherto had been placed in other brackets. It is further encouraging to report that since the introduction of the legislation which made necessary the reporting to the Department of all deaths associated with pregnancy, municipal authorities in the larger centres have shown more concern with the local situation. This interest has been evidenced by the attempt of the staff of the local health departments to acquaint themselves with the details of each case occurring locally.

It is not possible at the moment to present in its entirety the picture of the five year period for which detailed reports of all maternal deaths have been received. However, a comprehensive study showing the relationship of age, extent of pre-natal care, place and type of delivery, etc., in these cases is in progress and will be fully reported on at a later date.

The following table presents some interesting data:

CAUSE	1933	1934	1935	1936	1937
	%	%	%	%	%
Puerperal Septiciemia.....	23	23	15	25.	22.5
Puerperal Toxemia.....	20	22	24	25.3	28.7
Abortion.....	18	20	18	16.9	16.6
Haemorrhage.....	13	16	11	10.4	12.5
Ectopic Gestation.....	3	4	4	4.2	2
Embolism and sudden death...	12	6	12	11.2	12.2
Other Puerperal causes	11	9	16	7	5.6

(NOTE:—In each year there have been a number of deaths from extra-puerperal causes, such as those to whom pregnancy was an additional risk because of a pre-existing disease, also those in whom a fatal disease developed during pregnancy; those dying from these extra-puerperal causes are not included in this table.)

It is to be noted that there is no substantial change in the percentage of those dying from any of the commoner causes with the exception of puerperal toxemia. Deaths due to the toxaemias of pregnancy include those resulting from hyper-emesis gravidarum, eclampsia, fulminant toxæmia, etc. These are presumed to be due to defective functioning of such organs as the liver, kidneys, thyroid or from certain chemical changes in the foetus or placenta. The symptoms associated with these conditions are usually recognizable. Reasonable pre-natal care including regular examination should do much to reduce the toll of deaths from this cause.

While there is apparently a slight decrease in those deaths from septiciemia and septic abortion over the previous year, a more pronounced decline might have been anticipated because of the efficacy of the newer therapy in the treatment of streptococcic infections. A review of the 1938 reports, while not as

yet complete would lead one to believe that the puerpural septiciemias will be quite markedly reduced, no doubt due, in part to the more wide-spread use of chemico-therapy.

Infant Care.

While there has been a continuous decline in the infant death rate over the last ten years, the rate for 1937, though sustained did not decline from that of 1936. In the face of this figure one might feel as the result of our present programme that we had reached an irreducible minimum in infant deaths. While this may be in part true in respect to those deaths occurring in the later months of infancy, much still remains to be done to lessen the number of those dying during the first two or three months of life. Review of the available data shows that over 56% of all deaths under one year of age occurred in the first month of life and almost a third of all deaths under one year of age were attributed to prematurity. These figures would point to the necessity for more fundamental investigation into the morbid factors of maternal and placental origin. The problem must now be approached from this angle if any further reduction in infant deaths is to be obtained.

Pre-School and School.

Attention must be drawn to the high mortality in the age group from 2-15 from accidental causes. In the elementary school age group this is by far the highest cause of death and in the pre-school age group accidents rank second, following closely those deaths from diseases of the respiratory tract. The continued high incidence of accidents among those age-groups is a further manifestation of the necessity for a more effective approach to the problem of accident prevention.

In the last year this Division again co-operated with several municipalities in the medical examination of children about to enter school. The desirability of physical preparation for school is an idea which appears to be gaining in favour judging from the interest shown in this field. Assistance in the programme of immunization against diphtheria and smallpox as carried out by the Department in the unorganized parts of the Province was also supplied by the Division.

Consultative and directional service has been furnished various centres which are seeking to evolve acceptable plans to fit the health needs of the high school population.

The evident concern being exhibited by many municipalities in the health of the pupils in the secondary schools is indicative of a growing realization of the value of sustained health supervision from conception to the age of self-dependency. Adequate health service in such schools must be more than a mere extension of the elementary school programme; it must be designed to specifically meet the needs of the group it presumes to serve. It must be investigatory, directional and consultative.

The Division again gave direction to the programme of the Department of Education, whereby all students seeking admission to one or other of the teacher-training schools are required to pass a rigid medical examination. The findings of the medical examiners are as follows:

42 %	had defective vision.
2.5 %	had defective hearing or ear disease.
7 %	had defective teeth.
12 %	showed abnormalities of the tonsils.
4 %	had obstruction to nasal breathing or sinus and antra infection.
8 %	had abnormalities of the thyroid gland.
10 %	had wide deviations from the presumed normal in weight.
7 %	showed cardiac abnormalities.
7 %	showed variations in blood pressure.
4 %	were definitely anaemic.
7 %	had untoward findings in the urine.
4 %	showed manifestations of nervous disorders.
2 %	had orthopedic defects.
4 %	had gastro-intestinal disturbances.
.5 %	had defects in speech.
.6 %	had hernia.
3 %	had respiratory disease other than tuberculosis.
4 %	had flat feet.
4 %	had enlarged cervical glands.
4 %	had other abnormalities.

In addition to these findings which in themselves are indicative of the need for health supervision in the secondary schools, forty cases of active tuberculosis have been discovered in the four years this programme of medical examination of students seeking admission to the teacher-training schools has been in effect. The Division feels that the discovery of these forty potential sources of infection eliminates a health hazard to which hundreds of children would have otherwise been exposed.

The Director again acted as Principal of the Summer Course in Health Education for teachers. This course was prompted by the desire of the Departments of Health and Education to stimulate a larger measure of concern on the part of teachers in the health of their pupils and was designed to aid in the solution of the health problems presenting. This course has gained in popularity with the teaching profession to the extent that the attendance last year was over three hundred.

PUBLIC HEALTH NURSING

EDNA L. MOORE, REG. N., *Chief Public Health Nurse.*

Throughout the year the public health nursing staff of the Division of Maternal and Child Hygiene and Public Health Nursing consisted of a chief public health nurse, five supervisors and ten staff nurses.

Four supervisors give consultant and advisory service to all local official public health nursing programmes as well as to specialized school health, tuberculosis and child hygiene programmes under non-official direction. This service includes the introduction of newly appointed nurses to their work.

With 105 centres and 12 units extending from Cornwall to Windsor, Niagara Falls to Cochrane, and Ottawa to Fort Frances, it is difficult with so few supervisors to give all that the department would like in the way of supervision. Every effort is made on the occasion of the supervisor's visit to give sufficient time in each centre for the observation and discussion of all phases of community health. After these visits reports are sent to the officials sponsoring the work. The staff have recently emphasized the desirability of the local library boards having on their shelves books and journals on health subjects that would assist in the promotion of sound information with respect to individual and community health.

One supervisor and eight staff nurses constitute the public health nursing staff of the Eastern Ontario Health Unit; one nurse is attached to the Division of Health Education and another carries out a generalized public health nursing programme in the Temiskaming district.

On July 31st, Miss Bertha Johnson of the supervisory staff was seriously injured in a motor accident, as the result of which she was unable to return to duty during the balance of the year.

For ten months of the year a staff nurse from the Health Unit was on leave of absence to assist with the nursing programme of the Ontario Society for Crippled Children. A relief nurse carried on the work in the district.

During the Summer School session, a member of the supervisory staff was on duty at the Health Education Course where she was in charge of the nursing activities of the health service in the practice school; she also assisted with the health service to the teacher-students.

The London Board of Health requested that Miss Hilda Pennock of the supervisory staff be loaned for four months as the acting director of nursing in their newly amalgamated service. This was arranged for the months of June, July, August and September, and at the end of the period a director of nursing was appointed. The Board expressed much satisfaction with the organization developed by Miss Pennock.

In Ottawa the Board of Health extended the public health nursing service in 1937 by increasing the staff employed. Assistance was given the local supervisor and staff in reorganizing the programme of maternal and child hygiene, communicable disease and school nursing carried on in the separate schools of the city.

York Township completed arrangements for the amalgamation of the nursing services and the setting up of a generalized public health nursing programme. The public health nursing needs of the district were carefully considered and in conjunction with the local authorities, an attempt was made to evolve a suitable programme which would meet them.

St. Catharines continued the development of the generalized service initiated in 1937. In December a supervisor of nursing was appointed to commence her work, January, 1939.

Twenty-six new nurses were introduced to the local programme by the Department supervisory staff.

Group conferences were conducted at North Bay, Sudbury, Timmins, Kirkland Lake and Haileybury, by the chief public health nurse.

In the Temiskaming district, two new schools were built, making the total 94 with 3,107 children enrolled. Rooms were added to several schools and the attendance increased so much that the stagger class system was adopted in several centres. This district includes part of three school inspectorates. During 1938, 65 schools were visited for routine inspection; in addition several visits were made to certain schools in connection with the local programme of immunization. Parents were notified of 439 apparent physical defects other than dental, and 203 of these were corrected during the year. Children having dental defects numbered 1,234 and of these 207 had corrections. In the organized townships of the district, 408 children received protection from diphtheria, 873 were vaccinated against smallpox, 47 received whooping cough vaccine and 56 were given five doses of scarlet fever toxin. Tuberculin tests were given to 1,205 children and those showing a positive reaction to the test were X-rayed. The organization necessary for such a programme of immunization is time-consuming and represents many miles of travel.

In Teck Township and the Town of Timmins, the public health nursing staffs were increased and additional facilities provided for carrying out more efficient service.

At Copper Cliff, Levack and Creighton Mine, a public health nursing service was established by the International Nickel Company.

In the Town of Bowmanville the citizens were asked to vote on the question of re-establishing the public health nursing service which had been discontinued by council at the end of April. The result of the vote was in favour of the re-establishment of the service.

The problem of staff education is partly met by the Refresher Courses organized regularly by the University of Toronto School of Nursing and Department of Extension, and occasionally by the Public Health Institute of the University of Western Ontario, as well as group and regional conferences held in different centres.

Notes on the papers presented at Refresher Courses were prepared and mimeographed copies distributed to the public health nurses in the Province.

As in past years, an attempt has been made to bring together qualified public health nurses and agencies wishing their services.

A conference was held with the chief superintendent and the Ontario supervisors of the Victorian Order of Nurses. It is the opinion of both groups that such a meeting should be arranged at least once a year for the discussion of common problems.

An interesting co-operative arrangement was made with the Women's Institute Branch of the Department of Agriculture. It gave to our staff in the Eastern Ontario Health Unit, the benefit of several discussion periods on nutrition under the leadership of a member of the Institutes staff, while our staff members, in the course of their work, helped in the introduction of the recently appointed Home Economics Coach to the homes of the district.

The helpful advice of our honorary consultant, Miss Elizabeth L. Smellie, C.B.E., Reg.N., is a strength to the service and a source of encouragement to the chief public health nurse and members of the supervisory staff in particular.

A detailed account of the public health nursing service of the Eastern Ontario Health Unit is contained in the Annual Report of the Unit

EASTERN ONTARIO HEALTH UNIT

M. G. THOMPSON, M.B., D.P.H., *Medical Director.*

In preparing the Annual Report upon the activities of the Health Unit during the past year, one is naturally prompted by a desire to elaborate on those aspects of the programme which lend themselves to favourable comment. While there are various phases of the work which are discouraging by their necessary slowness of progression, it is gratifying indeed to report on the success of the St. Lawrence Sanatorium.

This, as noted in the report for 1937, was opened in October of that year and has for some months been filled to capacity. Already there has been a number of patients discharged with their condition arrested, and, with each case returning to their homes improved in health, there is less resistance on the part of other cases to sanatorium treatment. In the past year, 100 patients were admitted to sanatoria as compared with 63 in 1937. Admissions from Prescott and Russell Counties increased from 18 to 33. Of these, 19 went to sanatoria in Western Ontario, whereas only 7 did so in 1937. The new scheme whereby the Government relieved the municipalities of the cost of treatment has been a great help in securing many of these admissions, but there has been, since the organization of the Unit and particularly since the building of the Sanatorium, a great change throughout the whole area in the attitude of the general public towards the controlling of this disease.

Tuberculosis is still the greatest public health problem in the eastern counties. During the year, 60 deaths were reported, a rate of 68 per 100,000 population. This is more than double the rate for the Province as a whole (33.4)). Table I gives the tuberculosis mortality rates by counties for the past eight years.

TABLE I
TUBERCULOSIS MORTALITY RATES—COUNTIES OF EASTERN
ONTARIO HEALTH UNIT

YEAR	GLENGARRY	STORMONT*	PRESCOTT	RUSSELL	TOTAL UNIT
1931	102	79	61	65	76
1932	90	37	80	91	74
1933	84	50	51	89	66
1934	52	37	47	41	45
1935	102	60	54	57	67
1936	66	27	85	52	60
1937	55	67	35	36	49
1938	96	60	77	41	68

*Excluding the Town of Cornwall

Chest Clinics were conducted by the Division of Tuberculosis Prevention in the following centres: Alexandria, Cornwall, Casselman, Hawkesbury, Plantagenet and Rockland; and by Dr. G. W. Cragg, Medical Superintendent of the St. Lawrence Sanatorium, at Alexandria and Finch. A considerable number of examinations were made too at clinics at the St. Lawrence Sanatorium and the Royal Ottawa Sanatorium and at the Ottawa office of the Division's clinician, Dr. D. McCallum. A total of about 1410 X-ray examinations were made, which is approximately 500 more than last year. All the clinics in the various towns were organized by the Unit's nursing staff and the nurses have spent considerable time rounding up contacts of known cases and arranging for their examination.

STATEMENT OF COMMUNICABLE DISEASES IN 1938—Continued.

TABLE II
Total Known Contacts Contacts Examined

NURSING DISTRICT	25 years and under	26 years and over	25 years and under	26 years and over
Alexandria.....	180	114	97	45
Lancaster.....	179	124	78	23
Hawkesbury.....	286	172	139	68
Plantagenet.....	210	90	104	45
Casselman.....	123	37	62	20
Rockland.....	112	68	47	34
Cornwall.....	167	86	82	36
Finch.....	81	33	41	12
Totals, Dec., 1938..	1338	724	650	283
Per cent. with Examinations up to date, Dec., 1938..			49%	39%
Totals, Dec., 1937..	1046	520	439	148
Per cent. with Examinations up to date, Dec., 1937..			42%	28%

Table II shows the number of contacts of tuberculosis cases and the number who have received the suggested number of examinations. Because of the increased number of patients seen at the clinics this year, the percentage of such examinations shows a considerable increase over last year. There are still, however, a large number of contacts who have never attended a clinic or who did not receive a re-examination at the time recommended by the examining clinician. The clinics held were filled to capacity and there was, of necessity, an effort made to select those cases who were in most urgent need for examination.

TABLE III
SUMMARY OF TUBERCULOSIS CASES

	Alexandria	Lancaster	Hawkesbury	Plantagenet	Casselman	Rockwell	Cornwall	Finch	TOTALS FOR YEAR 1938	COMPARATIVE TOTALS FOR YEAR 1937
Cases at home, Jan. 1, 1938.....	65	36	76	32	19	28	13	13	282	260
New Cases found during year.....	23	37	26	27	12	17	27	15	184	109
Returned home from Sanatoria.....	9	4	4	4	2	4	8	1	36	22
Moved into district.....	1	2	0	2	0	0	4	0	9	7
Died at home.....	1	5	12	6	1	6	3	2	36	31
Moved from district.....	4	4	3	1	3	2	1	4	22	18
Diagnosis reversed.....	4	1	9	1	0	1	2	0	18	4
Admitted to sanatoria.....	22	20	15	8	5	5	16	9	100	65
CASES AT HOME, Dec. 31, 1938.....	67	49	67	49	24	35	30	14	335	282
In sanatoria, Jan. 1, 1938.....	14	11	9	8	1	6	20	2	71	43
Admitted to san. this year.....	22	20	15	8	5	5	16	9	100	63
New case to district by change of address of family.....	0	0	1	0	0	0	3	0	4	0
Discharged from san. this year.....	9	4	4	4	2	4	8	1	36	22
Died in Sanatoria.....	9	4	1	1	0	1	4	4	24	10
Discharged—family moved out of Unit.....	0	0	0	0	0	0	1	0	1	3
Discharged—family moved to an- other district in Unit.....	1	1	0	1	0	1	0	0	4	0
CASES IN SAN., Dec. 31, 1938.....	17	22	20	10	4	5	26	6	110	71
TOTAL CASES—at home and in San....	84	71	87	59	28	40	56	20	445	353

Table III states the number of new cases found; deaths; admissions and discharges from sanatoria; and other pertinent data.

TABLE IV
KNOWN TUBERCULOSIS CASES—EASTERN ONTARIO HEALTH UNIT—
DECEMBER 31st, 1936, 1937 and 1938

NURSING DISTRICT	Year	Grand Total	STAGE OF DISEASE (Cases at Home)						ACTIVITY (Cases at Home)				Cases in Sanatoria
			Min.	Mod. Adv.	Adv.	Child- hood	Other	Undeter- mined	Act	Quiesc.	Arr.	Undeter- mined	
Alexandria.....	1936	68	26	15	9	3	1	5	15	16	25	3	9
	1937	79	34	19	4	3	2	3	7	25	30	3	14
	1938	84	34	18	7	5	2	1	9	20	34	4	17
Lancaster.....	1936	41	11	5	6	0	4	5	5	5	16	5	10
	1937	47	17	6	4	1	3	5	4	7	20	5	11
	1938	71	20	12	5	4	3	5	10	10	23	6	22
Hawkesbury.....	1936	78	30	20	8	1	6	8	23	23	16	11	5
	1937	85	37	18	8	1	7	5	19	29	20	8	9
	1938	87	28	21	6	2	5	5	15	26	19	7	20
Plantagenet.....	1936	38	21	8	3	0	0	1	14	7	11	1	5
	1937	40	21	9	2	0	0	0	9	11	12	0	8
	1938	59	29	13	3	2	1	1	14	15	17	3	101
Casselman.....	1936	16	8	4	0	1	0	0	6	2	5	0	3
	1937	20	10	4	0	3	0	2	6	6	7	0	1
	1938	28	15	4	3	2	0	0	7	6	10	1	4
Rockland.....	1936	33	13	6	4	1	3	2	13	6	6	4	4
	1937	34	13	8	2	1	2	2	8	10	6	4	6
	1938	40	17	10	3	1	2	2	10	12	7	6	5
Cornwall.....	1936	20	3	5	2	0	0	3	5	5	0	3	7
	1937	33	6	4	0	2	0	1	3	4	5	1	20
	1938	56	19	6	0	3	0	2	7	8	15	0	26
Finch.....	1936	9	4	0	1	4	0	0	2	1	5	1	0
	1937	15	7	3	0	3	0	0	4	5	3	1	2
	1938	20	8	1	1	4	0	0	5	3	5	1	6
TOTALS.....	1936	303	116	63	33	10	14	24	83	65	84	28	43
	1937	353	145	71	20	14	14	18	60	97	103	22	71
	1938	445	170	85	28	23	13	16	77	100	130	28	110

Table IV gives by nursing districts the number of known cases of Tuberculosis in the Unit area and the present stage and activity of the disease in those residing at home.

TABLE V
SUMMARY OF TUBERCULOSIS CASES RESIDING AT HOME
BY STAGE OF DISEASE AND ACTIVITY—1936—1937—1938

STAGE OF DISEASE	Year	ACTIVITY				Total
		Active	Quiescent	Arrested	Undeter- mined	
Minimal.....	1936	30	38	47	1	116
	1937	19	61	64	1	145
	1938	26	56	85	3	170
Moderately Advanced.....	1936	25	18	20	0	63
	1937	22	27	21	1	71
	1938	20	33	26	6	85
Advanced.....	1936	22	8	3	0	33
	1937	12	5	3	0	20
	1938	20	4	4	0	28
Childhood.....	1936	0	1	8	1	10
	1937	0	3	10	1	14
	1938	4	4	12	3	23
Other Forms.....	1936	3	0	5	6	14
	1937	3	1	4	6	14
	1938	2	3	3	5	13
Undetermined.....	1936	3	0	1	20	24
	1937	4	0	1	13	18
	1938	5	0	0	11	16
TOTALS.....	1936	83	65	84	28	260
	1937	60	97	103	22	282
	1938	77	100	130	28	335

In Table V, further information on the condition of the disease in those patients who are still residing at home is given.

From these Tables it will be noted that:

- (1) 184 new cases were found this year as compared with 109 in 1937. This is due to the more complete coverage this year by the chest clinic service.
- (2) 100 patients were admitted to sanatoria. Of these, 67 were from Glen-garry and Stormont and 33 from Prescott and Russell. In 1937, ad-missions totalled 45 and 18 respectively. Of the 33 patients admitted to sanatoria from Prescott and Russell this year, 19 went to sanatoria in Western Ontario, whereas only 7 did so in 1937.
- (3) There are now 77 active cases of tuberculosis remaining in their homes. This is 17 more than in 1937 and is undoubtedly due to the increased number of examinations made during the past year. While there are several patients whose names are on the waiting lists of sanatoria, there are also a number scattered throughout the district who refuse all facilities for treatment.
- (4) Only 14 patients from Prescott and Russell Counties were admitted to sanatoria in eastern Ontario and Quebec. All the others who were admitted had to travel over 300 miles to the nearest hospital. Natur-ally, there are those who refuse to make this long trip and remain at

home in the hope that they may ultimately gain admission to the Royal Ottawa or St Lawrence Sanatoria. It is understood that some consideration is being given to a plan whereby a 50 bed wing would be constructed at the Royal Ottawa Sanatorium for patients from these two counties.

TABLE VI
CASES OF COMMUNICABLE DISEASE REPORTED

Chickenpox.....	51
Diphtheria.....	24
Gonorrhoea.....	13
German Measles.....	2
Measles.....	10
Mumps.....	135
Paratyphoid Fever.....	0
Poliomyelitis.....	1
Scarlet Fever.....	25
Syphilis.....	15
Typhoid Fever.....	8
Whooping Cough.....	52

There were no deaths from communicable diseases in the Unit area during 1938. Of the 24 cases of diphtheria reported, 19 occurred in Cumberland Township, Russell County, where very little immunization by toxoid has been carried out among children of school and pre-school ages. Since the outbreak, the school boards of two of the larger school sections have had toxoid administered to the children of their respective areas.

TABLE VII
IMMUNIZATION BY COUNTIES DURING 1938

COUNTY	DIPHTHERIA		SMALLPOX	
	5 Years and Over	Under 5 Years	5 Years and Over	Under 5 Years
Glengarry.....	280	185	282	94
Prescott.....	382	261	400	275
Russell.....	489	159	35	53
Stormont.....	78	64	442	88
Total.....	1229	669	1159	510

Table VII gives, by county, the number of children immunized during 1938. Diphtheria toxoid clinics were held in 14 municipalities during the year.

With the exception of Cumberland Township, every municipality in the Unit has had at least one toxoid campaign; of the 29 municipalities, 19 have offered free clinics to the public on two or more occasions. There are 5 municipalities that have not offered free smallpox vaccination clinics to their residents.

TABLE VIII

PERCENTAGE OF CHILDREN IMMUNIZED AGAINST DIPHTHERIA AND
SMALLPOX, DECEMBER 31, 1938

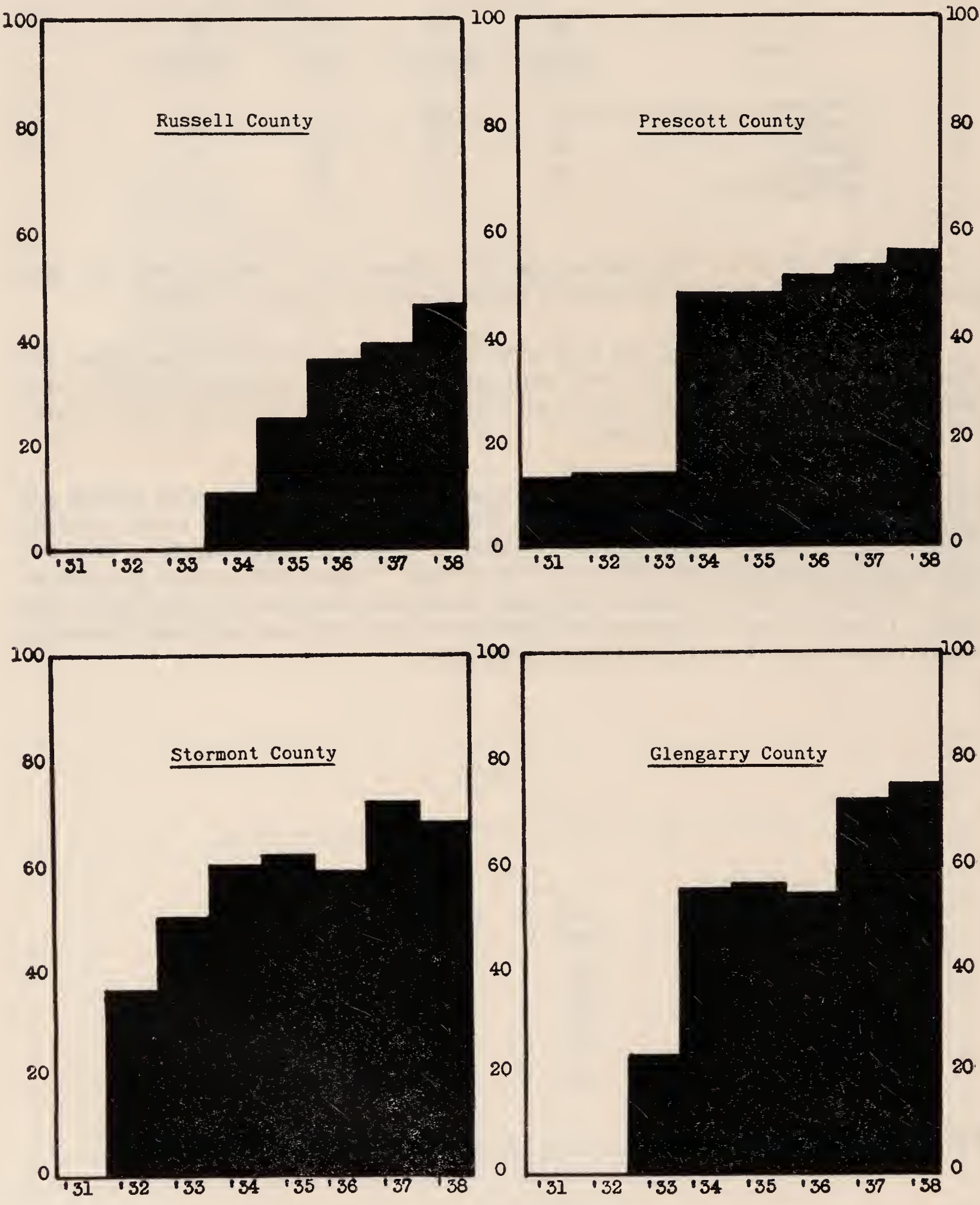
COUNTY	DIPHTHERIA		SMALLPOX	
	% School (5-14)	% Preschool (1-4)	% School (5-14)	% Preschool (1-4)
Glangarry.....	75	24	53	12
Prescott.....	56	24	53	9
Russell.....	46	17	30	15
Stormont.....	68	14	40	6
All Health Unit.....	60	20	45	10

Table VIII gives the percentage of children, by county and by age-group, immunized against diphtheria and smallpox at the end of 1938.

NOTE:—In computing the rates for the preschool section of this table, the population of this age-group was estimated from the number of births, less infant and preschool deaths. In computing the rates for the school-age children, the 1931 census returns were used.

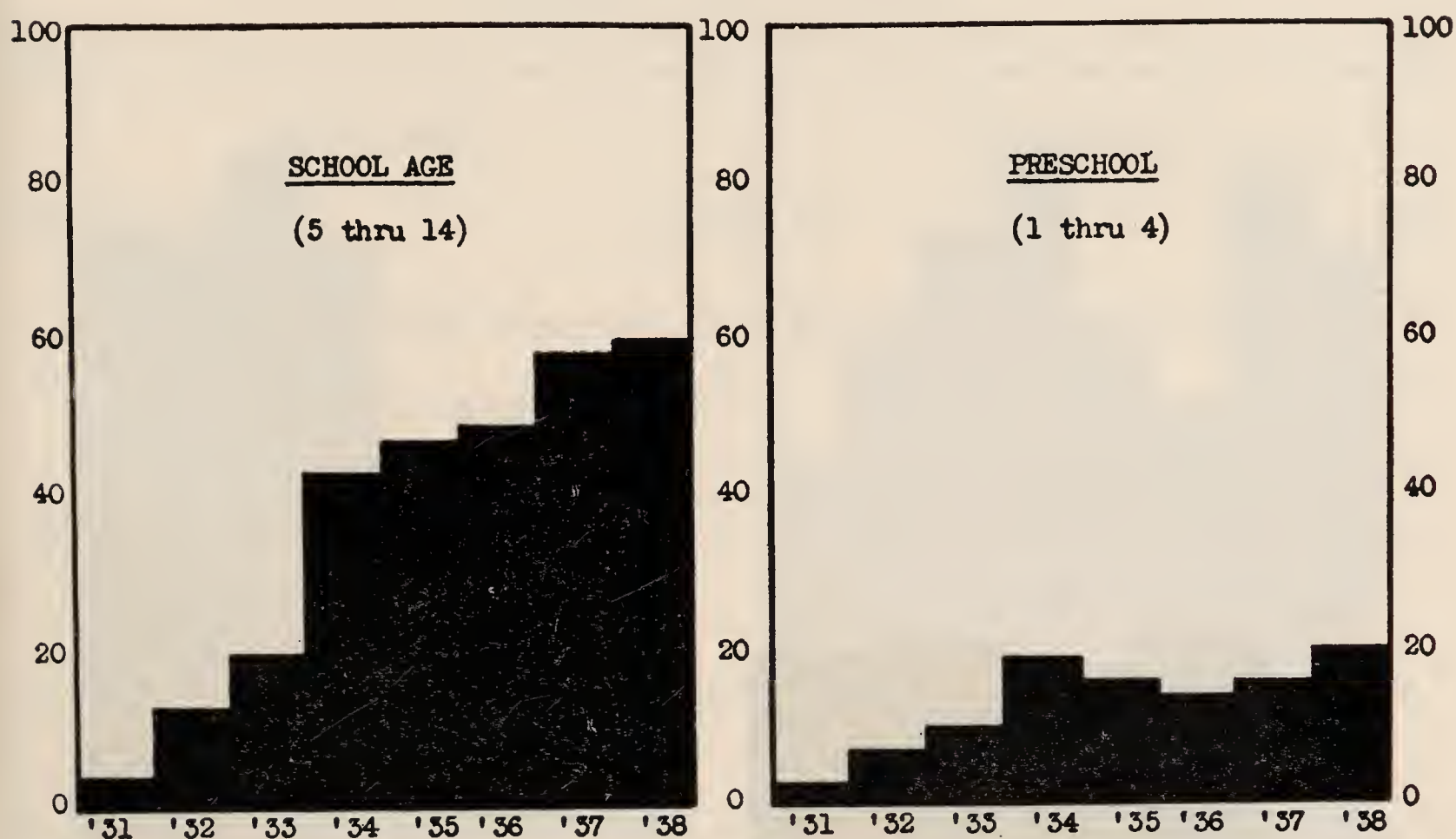
Only those children who have received the full three doses of toxoid are considered as immunized against diphtheria. In the distinctly rural sections of the Unit, there is a considerable number of children, particularly in the pre-school group, who receive only one or two doses. Some of these may go to their family physician for the third, but such cases are not always reported to the Unit. There is also a considerable number of vaccinations made each year by family physicians of which no record is received.

GRAPH I
DIPHTHERIA TOXOID IMMUNIZATION—EASTERN ONTARIO HEALTH UNIT
Per Cent. Immunized by Counties—School Age Group (5 thru 14 yrs.)



Graph I shows by county the percentage of school children protected against diphtheria each year since 1931.

GRAPH II
DIPHTHERIA TOXOID IMMUNIZATION—EASTERN ONTARIO HEALTH UNIT
Percentage Immunized



In Graph II, the percentages immunized for the whole Unit by school age (5 thru 14) and by preschool age (1 thru 4) are shown, from which it will be seen that in both age-groups the percentage immunized in 1938 is the highest of any year on record.

During 1938, our efforts were directed towards the diphtheria toxoid campaign and no scarlet fever immunization was carried out. It is hoped to place additional emphasis on immunization against scarlet fever and smallpox in 1939.

Infant and Child Hygiene.

The infant mortality rate for the Unit area for the year 1938 is the lowest ever recorded, being approximately 68 per 1,000 live births. The rates for 1938 are based upon deaths reported to the end of November, and estimated deaths for December.

TABLE IX
INFANT MORTALITY RATES—EASTERN ONTARIO HEALTH UNIT

Year	Glengarry	Prescott	Russell	Stormont*	All Unit
1931	109	81	110	107	99
1932	94	97	110	83	97
1933	85	110	119	72	99
1934	73	119	107	79	98
1935	46	97	79	78	80
1936	40	87	85	50	70
1937	80	118	79	41	81
1938	45	107	68	41	68

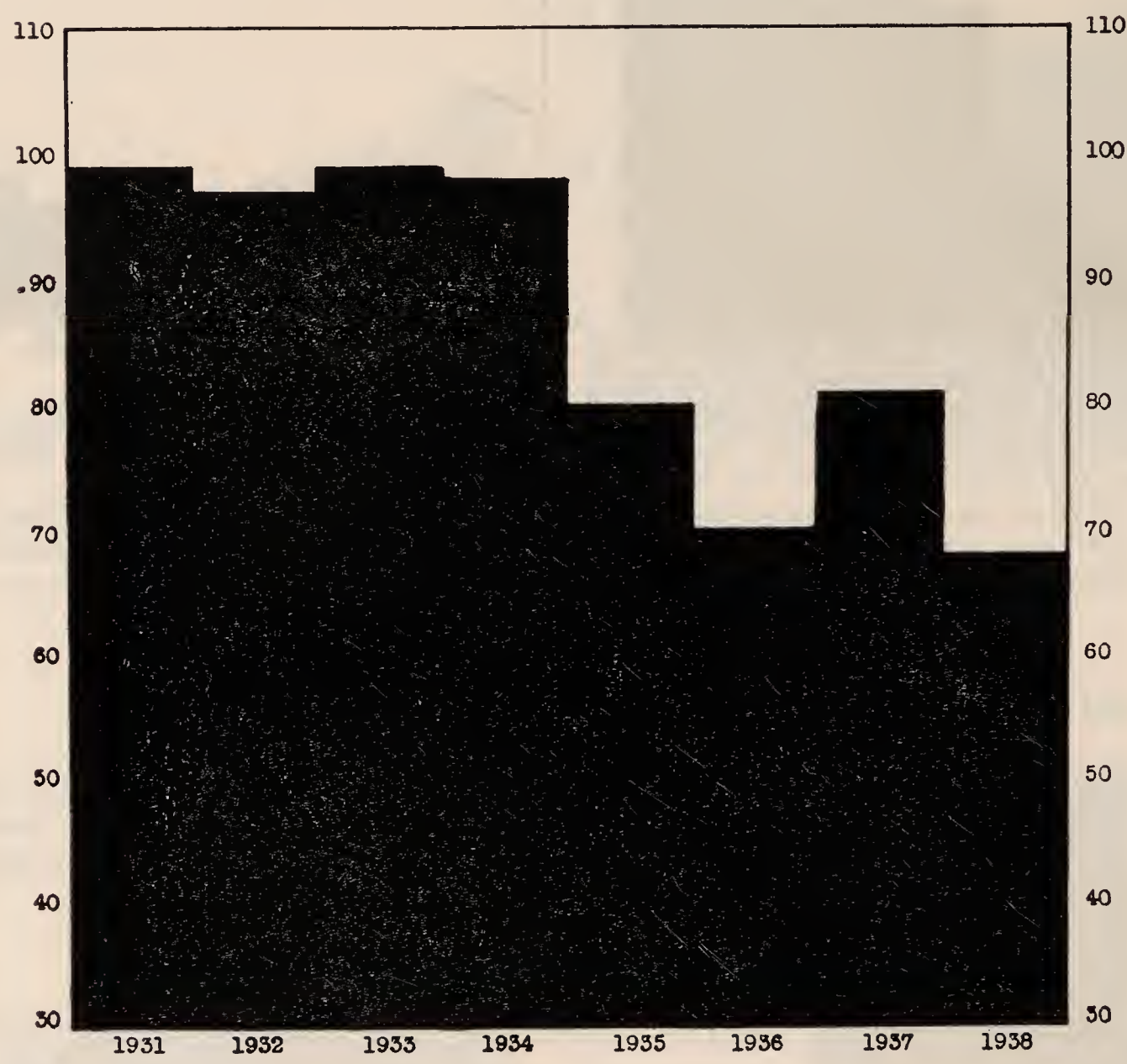
*Excluding Cornwall Town.

In Table IX the infant mortality rates for the individual county and for the Unit as a whole are given for each year, 1931 to 1938.

GRAPH III

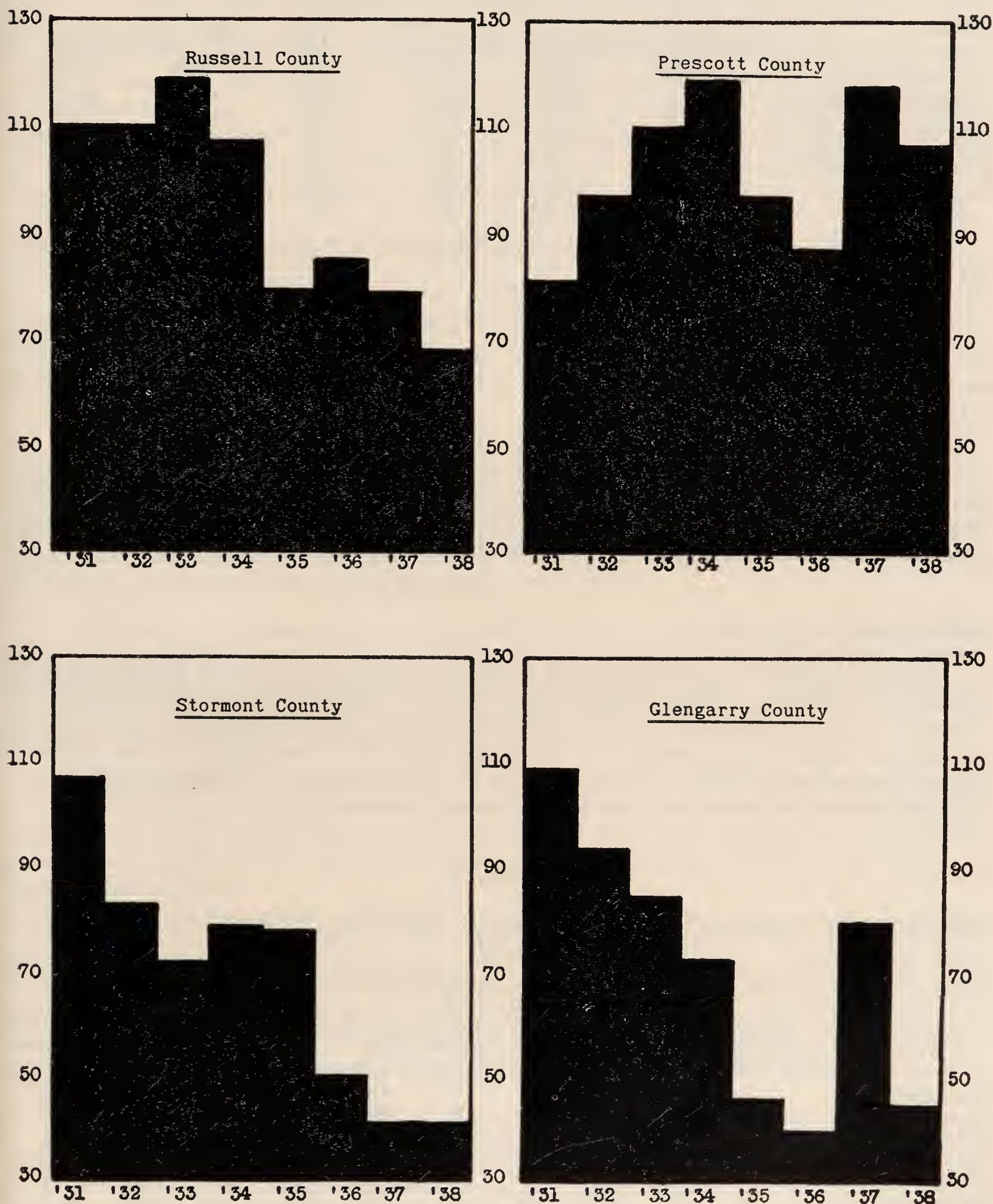
INFANT MORTALITY—EASTERN ONTARIO HEALTH UNIT

Deaths of Children under 1 year of age per 1,000 Live Births.



Graph III illustrates the trend in infant mortality rates in the Unit as whole—1931-1938

GRAPH IV
INFANT MORTALITY—EASTERN ONTARIO HEALTH UNIT
Deaths per 1,000 Live Births



Graph IV illustrates the trend in infant mortality rates in each county—1931-1938.

Since the inception of the Unit, apart from the year 1937, there has been a decline each year in the infant death rate. In considering the rate for 1937 (81 per 1,000 live births), it is interesting to note that the increase occurred in Glengarry and Prescott Counties and was due to respiratory and intestinal diseases. In these Counties there was an epidemic of influenza in January of that year.

TABLE X
A COMPARISON OF THE CAUSES OF INFANT DEATHS IN THE EASTERN ONTARIO HEALTH UNIT DURING THE PERIOD JANUARY-NOVEMBER OF THE YEARS 1936-1937-1938

CAUSE OF DEATH	PER CENT. OF TOTAL INFANT DEATHS			*DEATHS PER 1,000 BIRTHS		
	1936	1937	1938	1936	1937	1938
Premature birth.....	36.0	19.7	29.4	25.1	16.7	20.3
Respiratory causes.....	10.4	23.7	11.9	7.3	20.0	8.2
Intestinal diseases.....	10.4	17.8	8.7	7.3	15.0	6.0
Congenital debility.....	9.6	7.9	11.9	6.9	6.7	8.2
All Other Causes.....	33.6	30.9	38.1	23.4	26.1	26.4
All Causes.....	100.0	100.00	100.0	70.0	84.5	69.1

*Estimated from deaths reported January-November each year and calculated on a per annum basis.

Table X shows the chief cause of infant deaths in the Unit area for the years 1936, 1937 and 1938, from which it will be noted that deaths from premature birth and congenital debility accounted for over 40 per cent. of the infant deaths reported during 1938.

The toll of infant life in 1937 from respiratory infections and intestinal diseases is well illustrated in this table. In spite of the higher rate in 1937, the infant mortality rates in the Health Unit area for the period 1935-1938 are about 23 per cent. less than the rates for the period 1931-1934.

Child Health Conferences.

Child Health Conferences were held this year in six of the larger centres of the Unit district. The Conference started in Plantagenet in April was well attended. The Conference at Rockland had to be temporarily discontinued on account of staff adjustments. It was felt that the attendance at the Moose Creek Conference in 1937 did not justify its continuance. Altogether, 59 Conferences were conducted with an average attendance of 11.

TABLE XI
ANALYSIS OF CASES ATTENDING CHILD HEALTH CONFERENCES DURING 1938

VILLAGE OR TOWN	Clinics Held	Age on 1st Visit in 1938					Total Visits	Figures for 1937		
		1-3 mos.	4-6 mos.	7-12 mos.	Pre-School	Individ-uals.		Clinics Held	Individ-uals	Total Visits
Alexandria.....	12	26	11	5	16	58	160	12	61	161
Casselman.. ..	12	11	9	5	5	30	98	12	31	100
Embrun.....	6	10	6	7	7	30	59	7	15	31
Hawkesbury.....	13	25	10	5	1	41	141	10	46	125
Lancaster.. ..	7	5	1	6	10	22	48	8	49	102
Plantagenet.....	9	27	15	18	2	62	129	0	0	0
Rockland.....	....	....	....	....	....	....	0	5	28	37
Moose Creek.....	....	....	....	....	....	....	0	3	10	13
Total.....	59	104	52	46	41	243	635	57	240	569

Table XI gives the attendance report in detail for the Child Health Conferences held in six centres of the Unit area during 1938. Figures for the year 1937 are included for comparison.

Summer Round-up of Pre-School Children about to Enter School.

With the idea of arousing interest in sending a child to school for the first time in the best possible health, the staff of the Unit carried on two interesting efforts this year. The first was a comprehensive campaign of education of the parents by means of well-planned and effective publicity in the newspapers throughout the unit. The parents were urged to take the children who were to enter school in September to their family physician in May or June and have correction made of conditions which would handicap the child in his school work. The second was to offer an examination service in two centres during the month of June where examination was given by the Medical Director of the Unit to all children applying for the service.

Within the unit area there are no free treatment facilities for either pre-school or school-age children. Added to this is the fact that a large proportion of the families are in the lower wage-earning groups. These, among others, are reasons for the small number of corrections of defects found in both the pre-school and school-age groups.

School Health Service.

Because of the extensive area; the large population widely scattered and the small number of nurses, one visit to each school is all that can be planned during the year. In some instances, it is impossible to give even this minimum service, owing to road conditions during several months of the year. It is, therefore, difficult to secure correct data covering the extent to which defects have been corrected and health practices improved.

The yearly programme of work in the schools is as follows: In the village schools all children are weighed and measured and their vision tested; special physical inspection by the nurse is given to all beginners, those scheduled to leave school during the current school year, and those with previously noted defects. The children in other grades are seen at classroom inspections.

In the schools of four rooms or over, post-vacation inspection is given after the mid-summer, Christmas and Easter vacations, in order to discover symptoms of communicable, skin and other diseases. The children who are sent home as a result of these inspections are visited by the nurse in as many instances as possible.

In all one-room schools visited, special physical inspection is given by the nurse to all children in attendance at the time of the visit. During the year 1938 a total of 7,249 children received special physical inspection; 8,193 children received post-vacation inspection; 1,501 visits were made to homes to urge consultation with family physician and dentist regarding physical defects, and to discuss with parents the general health practices of the children.

TABLE XII

No. of class rooms inspected.....	231	
No. of pupils on register.....	6638	
No. of pupils receiving S.P.I. or C.R.I.	6031	
No. of children referred to doctor.....	2227	37 per cent.
No. of children referred to dentist.....	2764	46 per cent.
No. of children with no apparent defects	2155	36 per cent.
No. of children with defect of teeth only	1649	27 per cent.

Table XII presents some interesting items with respect to the School Health Service.

TABLE XIII
FINDINGS AT INSPECTION

DEFECT	New Defects	Old Defects	Defects Corrected	Apparent Defects Subsided
Vision.....	309	261	104	66
Hearing.....	31	33	0	22
Nasal breathing.....	140	374	69	24
Abnormal tonsils.....	445	800	168	45
Dental.....	1133	1631	452	6
Enlarged thyroid.....	20	7	1	1
All other.....	194	214	27	41
Totals.....	2272	3320	821	205

Table XIII shows the major defects found, together with the number of corrections made and improved conditions noted.

Orthopaedic Work.

An Orthopaedic Clinic was conducted in Alexandria in November by Dr. James Murray, orthopaedic surgeon of Ottawa. Twenty cases attended this Clinic, about half of whom were children who suffered from poliomyelitis in the 1937 outbreak. Sixteen of these cases are under treatment; in two cases treatment is being arranged for; and two were found not to need treatment. The local branch of the Catholic Women's League arranged for the transportation of a number of these cases to and from the Clinic. The Alexandria Clinic was the only orthopaedic clinic held in the Unit area. Members of the nursing staff, arranged during the year for the examination and treatment of a considerable number of cases from other parts of the Unit at Ottawa, Montreal and Toronto.

Mental Health Clinics.

These Clinics have been held one day a month throughout the year in the headquarters office of the Unit in Alexandria by Dr. C. H. Gundry, Clinic Director of the Ontario Hospital staff of Brockville. Dr. Gundry also holds clinics in St. Joseph's Industrial School at Alfred, in Hawkesbury and in Cornwall monthly. This service is of inestimable value, touching as it does a great need, but education of the public is required before it will be used to the fullest extent.

Meetings.

As in past years, a considerable number of meetings of Women's Institutes, church organizations and municipal councils were addressed by the Medical Director, the Supervisor of Nursing and the Sanitary Engineer.

Nursing Service.

Two graduate students from the School of Nursing, University of Toronto, were given field experience in the Unit.

Members of the staff attended Refresher Courses held in Ottawa and Toronto.

Five staff meetings were held during the year. Miss Vera Bambridge, Nutrition Specialist of the Women's Institute Branch of the Ontario Department of Agriculture, discussed with the staff at two of these meetings, nutrition problems as they affect the area. Miss Hollinger, Field Secretary of the Junior Red Cross, attended a third meeting, and her explanation of the aims of the Junior Red Cross Clubs in schools was most helpful. It is hoped to have her visit in the schools with the staff nurses at a later date.

In September, three nurses assisted with the physical examination of Normal School students in Ottawa and Toronto. 7,053 Nursing Visits were made by the staff. These included 149 visits made, for the most part, to demonstrate bedside care of patients to members of their families. 1,194 Special Activity Visits were made; the majority of these were for the purpose of securing attendance of patients and contacts at chest clinics.

Visits to maternity cases were increased about 50 per cent. over the previous year. It is interesting to note that most of these cases were discovered by the nursing staff, either directly or indirectly, through their home visiting activities.

In two districts where intensive work was done, of forty-one expectant mothers given nursing supervision, only three were referred by physicians; one mother was in the eighth month of pregnancy and two were in the ninth. However, 29 of the 41 patients had reported to their physicians before the end of the 5th month of pregnancy. It is evident that expectant mothers are making contact with the family physicians at an earlier date than heretofore.

Classes in Home Hygiene and Care of the Sick were organized in three centres. A total of thirty-one sessions were held with an average attendance of twenty-eight.

Table XIV is a summary of the activities of the nursing staff during the past year.

TABLE XIV

SUMMARY OF ACTIVITIES OF NURSING STAFF EASTERN ONTARIO HEALTH
UNIT FOR THE YEAR 1938

TYPE OF VISIT	NURSING DISTRICT								Total All Staff
	Alex.	Lanc.	Corn.	Finch	Hawk.	Plant	Cass.	Rock	
HEALTH SUPERVISION:									
Infant.....	296	127	125	213	211	136	36	132	1276
Preschool.....	110	185	136	162	162	81	34	19	889
School.....	122	235	165	291	322	150	90	126	1501
Adult.....	17	20	20	169	231	80	13	54	604
MATERNITY:									
Prenatal.....	138	36	37	71	32	47	57	21	439
Delivery.....	0	0	0	1	0	0	3	0	4
Post Partum.....	147	14	14	21	29	33	33	12	303
New Born.....	135	19	24	14	16	29	30	0	267
MORBIDITY:									
Non-Communicable.....	52	1	5	19	36	16	122	18	269
Com.—All Acute.....	1	0	0	8	4	11	4	14	42
Skin.....	0	2	6	4	7	2	1	17	39
V. D.....	0	0	0	4	1	8	0	0	13
TUBERCULOSIS:									
Diagnosed.....	122	61	32	74	223	112	45	79	748
Suspect.....	2	9	5	1	16	18	1	14	66
Contact.....	28	136	9	13	6	3	3	22	220
Visits in behalf of.....	18	0	31	58	100	47	18	17	289
Social Service.....	7	6	1	50	4	13	3	0	84
Bedside.....	(29)	(3)	(2)	(11)	(4)	(18)	(59)	(23)	(149)
SPECIAL ACTIVITIES:									
Re Clinics.....	107	33	44	202	293	199	234	82	1194
Promotion of Work.....	76	102	71	371	86	98	65	97	966
All other.....	87	5	96	160	80	123	94	9	654
TOTAL VISITS.....	1465	991	821	1906	1859	1206	886	733	9867
CLINICS:									
Diphtheria—3 doses.....	465	0	142	0	315	401	341	234	1898
Scarlet Fever—5 doses.....	0	0	0	12	0	0	0	0	12
Vaccinations.....	286	0	0	530	247	235	0	0	1298
CHILD HEALTH CONFERENCES:									
No. conferences held.....	12	7	0	1*	13	9	19*	0	61
No. children attending.....	160	48	0	23	141	129	178	0	679
SCHOOLS:									
Class rooms inspected.....	33	58	50	28	42	35	28	11	285
No. inspected.....	0	63	127	0	0	122	0	0	312
No. S.P.I.....	808	1360	1397	661	1133	784	795	311	7249
Quick inspections.....	2332	560	444	371	176	726	903	2681	8193
MEETINGS—Attended.....	10	16	16	17	6	4	8	2	79
Addressed.....	0	0	0	0	2	1	3	3	9
NURSING CLASSES.....	0	0	19	0	4	12	0	0	35
DAYS OFF DUTY—Illness.....	34	10½	14	3	26½	1½	12	2	104
CHEST CLINIC—Days.....	5½	½	0	1	10	7½	10	4	38½
FAIRS ATTENDED.....	5	3	2	5	0	2	0	0	17
VACATION—Days.....	18	25†	18	0	18	18	18	18	133

*Includes one preschool clinic.

†All of Miss Lunn's 1937 vacation and part of her 1938 vacation were taken within the calendar year 1938.

SANITARY ENGINEERING ACTIVITIES

During 1938, the programme of work in this branch of public health activity in the Health Unit area was conducted along similar lines to that of preceding years. It included regular inspections instituted by the sanitary engineer in connection with water and milk supplies and special investigations conducted at the request of local boards of health and other public bodies and private individuals. The inauguration of compulsory pasteurization in many areas in the province by provincial statute necessitated the devotion of considerably more time to this branch of the work. There was also an increase in the number of individuals who requested advice in connection with private water supplies and sewage disposal problems.

Water Supplies.

At Hawkesbury, major alterations and improvements at the water purification plant were completed. An additional filter unit was built and the three existing units were overhauled and repaired. The filtering capacity of the plant based on a rate of 2 gallons per square foot per minute is now almost 2,000,000 gallons per day. A dry feed machine for applying alum was also installed to replace the solution tanks which had to be removed to make room for the new filter unit. Changes made in the pumping equipment involved the removal of the steam driven pumps and their replacement with electric pumps with auxiliary gasoline engine drives. With the replacement of the chlorination apparatus with new equipment, which is expected to be made in 1939, the town will be have a well-equipped and efficient water purification plant. While much of the expenditure will ultimately be returned as a result of savings in operating charges, much commendation is due to the local authorities who have undertaken this very necessary work at a time when the local financial situation is none too promising.

At Alfred, following a series of reports which indicated that the water supply was subject to intermittent contamination, chlorination of the supply has been adopted. A Wilson Hypochlorinator was installed on September 21st, 1938.

During the summer and early fall, the rainfall on the watershed of the Delisle River from which the Town of Alexandria secures its supply was exceptionally low. This resulted in a serious shortage and for about two weeks it was necessary to restrict operation of the pumps to about four hours per day. The supply was augmented by opening up channels to tap natural storage basins upstream and by pumping back a considerable volume of water from a natural basin about a quarter of a mile below the waterworks dam. Normally, the water is pumped from a well, the bottom of which is about six feet above the level of the bottom of the pond behind the dam. Rearrangements were made in the pump suction to facilitate direct pumping from the river. Alterations in the dam to increase the available storage are also contemplated. As a result of these precautions, this plant will be in a better position to cope with a similar emergency should it again arise.

At Plantagenet, considerable interest has been shown in the question of securing better pressure in the distribution system and protection of the watershed of the spring creek from which this supply is drawn. It is probable that definite action to remedy these conditions will be taken during the coming year. At Clarence Creek, the removal of hydrogen sulphide from the local supply has been given some attention and it is planned to effect improvements during 1939.

Four routine inspections of the chlorine dosage were made of each of the following supplies:—Alexandria, Cornwall, St. Lawrence Sanatorium, Hawkesbury and Rockland. There were no cases of water-borne diseases reported in the area attributed to the use of water from any of the community supplies.

Enquiries were made by eleven individuals with respect to the examination and protection of private wells. Improvements were effected in a number of instances. A special investigation was also made of the supply at the convent at Lefaivre in Alfred Township and a report prepared.

Sewage Disposal.

Advice was given to six individuals with respect to septic tank installations for private homes. These included residents of Vankleek Hill town and the Townships of Lochiel, Lancaster, Charlottenburgh and Roxborough. In five instances construction work was completed.

Co-operation with the cheese factory inspectors employed by the provincial Department of Agriculture in endeavoring to secure more sanitary methods of disposal for cheese factory wastes was continued. Recommendations were made in connection with eight factories and an inspection was made at one factory where improvements were effected three years ago. These factories were located as follows: Lochiel Twp. 3; South Plantagenet Twp. 2; North Plantagenet Twp., Osnabrock Twp., Kenyon Twp., and Roxborough Twp, 1 each.

A total of twelve drainage problems, chiefly complaints of cesspool overflows, were investigated and recommendations were made where corrections were necessary. These investigations were distributed as follows: Alexandria, 3; Rockland, 2; and Maxville, L'Original, Casselman, Lancaster Village, North Plantagenet Township, Alfred Township and Roxborough Township, 1 each.

School Sanitation.

Major school building projects in the Unit area consisted of the erection of a new four-roomed separate school in Vankleek Hill and the enlargement and renovation of the separate school at Moose Creek. These buildings are modernly equipped and are a credit to the communities which they serve.

Nine other school inspections were carried out and recommendations made on such points as toilet accommodation, water supply, lighting, etc. Schools visited were located in the following municipalities: Charlottenburgh, 2; Roxborough, 2; Maxville, Vankleek Hill, Longueuil, Cambridge and Osnabrock, 1 each.

Milk Supplies.

By reason of the enactment of provincial legislation, the sale of pasteurized milk became compulsory after October 1st, 1938, in the following centres: Rockland, Hawkesbury, Vankleek Hill, Alexandria and the southern portion of Cornwall Township. There are now 19 pasteurizing plants located in these centres as compared with 7 in 1937. The establishment of 13 new plants (one existing plant was closed) involved many visits prior to and during construction and after processing began. A total of 64 casual visits were made and 31 inspections covering the equipment and methods of operation.

The enforcement of this legislation has, on the whole, been fairly well received and no difficulties have been encountered which were not anticipated. There are still small quantities of raw milk sold in these compulsory areas but

it is hoped that these conditions will be rectified during the coming year. Investigations of raw milk sales in Rockland and Vankleek Hill were made and reports prepared. A number of enquiries from owners of one or two cows in the affected areas were also dealt with. Casual inspections of raw milk plants in Avanomore, L'Original, Maxville and Plantagenet were made.

The system of collection of milk samples in the various towns and villages in the area was continued. A total of 272 samples were secured. In addition, 98 samples were submitted by local authorities. A total of 127 samples of pasteurized milk secured from 25 dealers located in 5 centres were examined. The logarithmic average of the standard plate counts was 13,400. This compares with a figure of 34,000 obtained in the examination of 69 samples in 1937. It is interesting to note that preliminary results being secured by the newly established plants are very good and these results are having a salutary effect where they are in competition with older established plants. A total of 243 samples of raw milk secured from 102 dealers located in 18 centres were examined. The logarithmic average of the standard plate counts was 46,000 as compared with a figure of 56,000 obtained in 1937.

Miscellaneous.

A total of 13 other problems of various natures were investigated and where necessary reports prepared and recommendations made. A public meeting was attended in Rockland to discuss the question of compulsory pasteurization. A talk was given to a short course agricultural class at Bainsville on the construction and protection of private well supplies.

Distribution of Work.

Summarizing all activities, the work was spread over 25 of the 28 municipalities in the Unit area. Work instituted by the writer in connection with water and milk supplies embraced 18 municipalities. A total of 63 special problems of various natures were investigated at the request of the following: Head Office, 2; provincial government officials, 9; private individuals, 22; and local boards of health, 30. Requests from local boards of health were received from 15 municipalities.

DIVISION OF TUBERCULOSIS PREVENTION

G. C. BRINK, M.B., *Director.*

In March, 1938, amendments to the Sanatoria for Consumptives Act were passed by the Legislature; the new Act came into force on July 1st, 1938. The changes in the Act were prompted by several factors, among which were,—the striking variation in the tuberculosis mortality rates; the sanatorium maintenance costs, and the incidence of hospitalization of tuberculous cases in counties, districts, cities and towns. (See Charts I to VII).

Under the old Sanatoria for Consumptives Act the county was the unit from which payment for maintenance of indigent patients was made to sanatoria the rate being \$10.50 per week. One-half of this amount was charged back to the local municipality, that is the township, village or town in which the patient resided. This meant that the town, village or township paid directly to the county \$5.25 per week for every one of its patients in sanatorium and indirectly through its county tax a portion of the remaining \$5.25 paid by the county. Cities and separated town in counties were required to pay the entire charge, \$10.50 per week.

Further, organized municipalities in territorial districts (unorganized territory), whether cities, towns, villages or townships, were responsible for the entire maintenance charges (\$10.50 per week) in sanatorium of their non-pay patients. These municipalities paid no tax to the district in which they were located. With the exception of the cities and a few towns in Northern Ontario very few municipalities were financially able to meet their hospitalization costs.

The Government paid its statutory per diem grant on all indigent patients up to 75c per day.

The results of the above method of payment of maintenance charges retarded hospitalization and control of the disease due to the following three factors:

(1) Those individuals who were unable to meet the expense associated with prolonged sanatorium treatment, not wishing to become public charges, either delayed their entry into sanatorium or refused such treatment altogether. As a result they remained at home, the disease frequently advanced and gross infection occurred in those in intimate contact.

The apparent difficulty of convincing the municipal officials as to the inability of certain individuals to meet the cost of prolonged hospitalization frequently led to controversy between the patient and the physician on the one hand and the local authorities on the other.

(2) The inability of some municipalities to meet the necessary expenses; and

(3) The obvious attempt of certain other municipalities to avoid assuming their statutory obligations.

This situation resulted in:—

(a) Not more than 50% of those dying of tuberculosis during the last few years had the benefit of sanatorium treatment within five years of death.

(b) Only 50% of those patients for whom sanatorium treatment was advised by the Department's Travelling Chest Clinics during 1936, had entered a sanatorium within one year of discovery and recommendations.

Frankly, failure on the part of some municipal officials to assume their statutory and implied responsibilities was one of the chief explanations for the marked difference in death rates, sanatorium costs and the number of people entering sanatorium from certain sections of the Province.

The passing of the new Legislation was an effort on the part of the Government to overcome those factors inhibiting the control of the disease. It is hoped that the new Legislation will permit of earlier sanatorium treatment following diagnosis and the earlier discharge of some patents from sanatorium which should make possible a greater number of people receiving appropriate institutional care.

The essential provision of the amendments to the Act are:—

The Government has assumed the responsibility of payment of maintenance of indigent patients in sanatoria, which was formerly borne by the municipalities. Those able to pay in part or in whole are expected to do so; payment by the patient is expected when income and assets indicate that such should be the case.

Some patients who had received maximum benefit from sanatorium care and who were not a danger to other people, were being maintained in sanatoria for an unnecessarily long period, because there was no organized method of caring for them in their own municipalities. At the same time patients urgently in need of sanatorium care were forced to remain at home because all available beds in sanatoria were filled. On occasion it was both difficult to get the patient into and difficult to get him out of sanatorium.

In view of the fact that the Government has relieved the municipalities of their former share of sanatorium costs, which with the increased bed accommodation would have amounted annually to nearly \$2,000,000.00, the municipalities have been made responsible for the after-care of ex-sanatorium patients who are unable to supply the necessary care for themselves. The after-care includes lodging, food and clothing, and the necessities of life. A comparatively small percentage of patients will require assistance after discharge and the cost to the municipalities for after-care will be a small fraction of their former sanatorium costs.

There are patients who will require pneumothorax refills from time to time following discharge. The municipality is made responsible for the transportation of such patients to centres where the facilities for this treatment are available, in the event that they are unable to provide their own travelling expenses. The local Department of Health through its Medical Officer of Health in co-operation with the family physician is made responsible for the arrangements connected with the carrying out of the refill and for the payment to the approved physician, hospital clinic, or sanatorium clinic for this work. The payment for each refill is up to \$3.00 depending on the amount the patient may be able to pay toward his own treatment.

The Government is reimbursing the municipalities for the payment of this special treatment but not for the transportation of the patients. The municipality is also responsible for transportation from sanatorium of its indigent patients.

As a result of the operation of the new Act, during the period July 1st to December 31st, 369 more patients were placed under sanatorium treatment

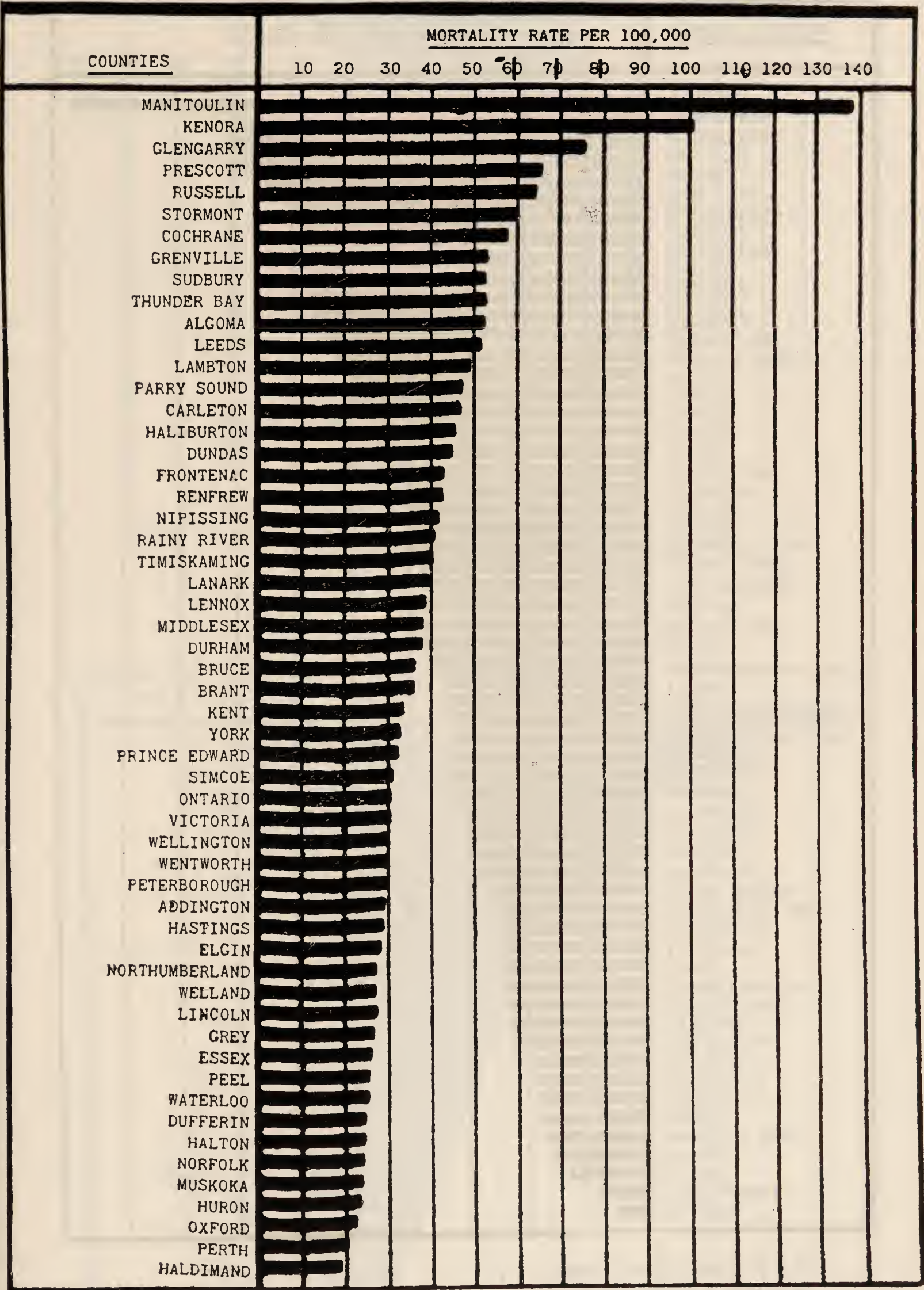
than in the corresponding period in 1937. Some of this increase in sanatorium population has been due to increased bed accommodation. However, from reports being received in the Department the interval between diagnosis and admission to sanatorium has been definitely decreased and a greater number of patients has been discharged.

Prior to July 1st, there was no organized or uniform method of providing after-care. Some municipalities provided adequate care for their ex-sanatorium patients unable to secure the necessary care themselves, while in others, the patients frequently were forced to engage in work totally unsuited to their condition in order to support themselves, the result being that re-activation of the disease necessitated return to sanatorium.

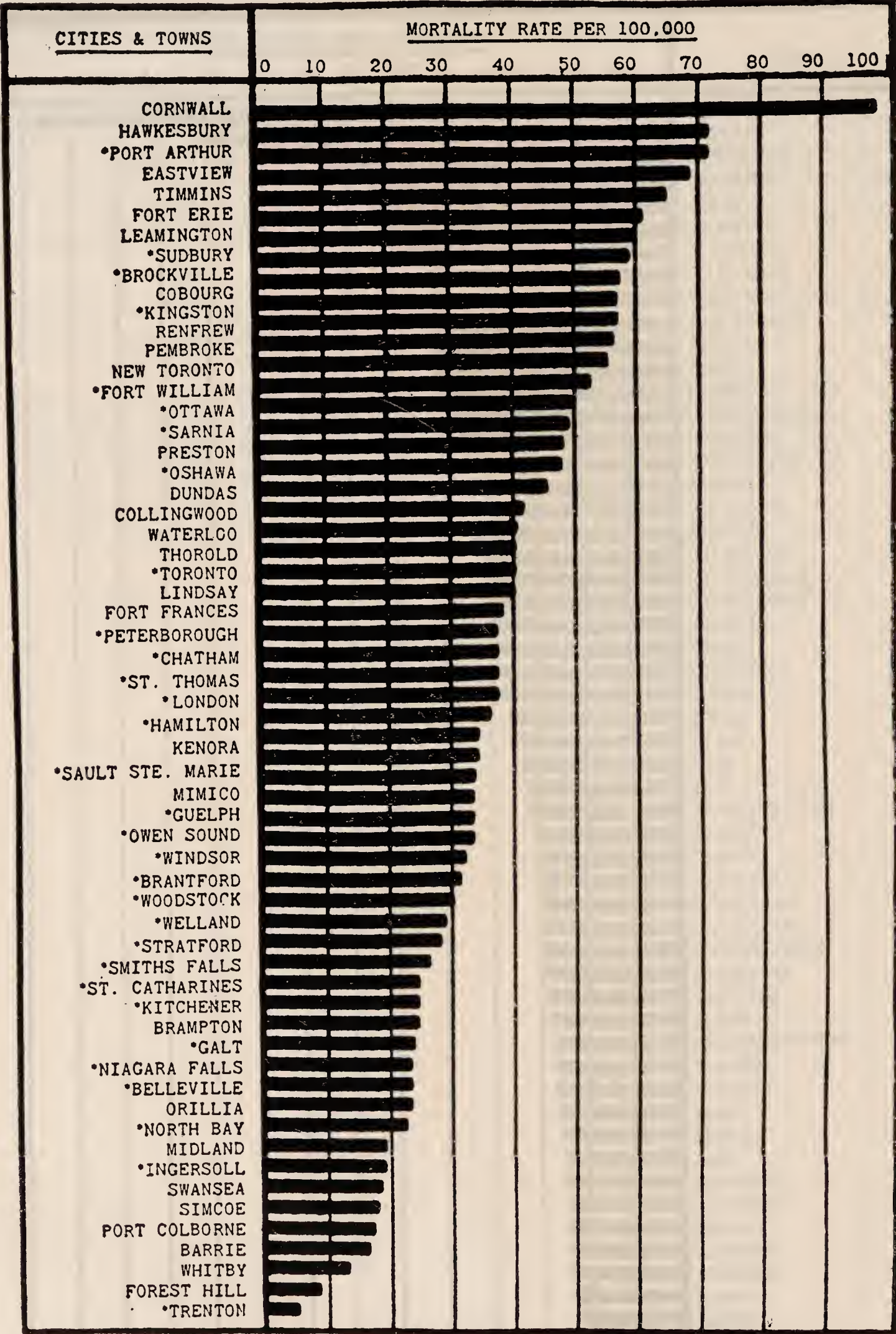
During the later part of the year additional accommodation was provided at the following sanatoria:—

Toronto Hospital for Consumptives, Weston.....	120 beds.
Mountain Sanatorium, Hamilton.....	106 beds
Queen Alexandra Sanatorium, London.....	88 beds
Freeport Sanatorium, Kitchener.....	24 beds
Kingston Sanatorium (associated with the Kingston General Hospital).....	12 beds
Total.....	350 beds

RESIDENT TUBERCULOSIS MORTALITY RATE BY COUNTIES
ONTARIO—1934-1936



RESIDENT TUBERCULOSIS MORTALITY RATES—CITIES & TOWNS †
ONTARIO 1934-36 (AVERAGE)



† 5000 POPULATION & OVER
• CITIES & SEPARATED TOWNS

CHART III

SANATORIUM CHARGES TO COUNTIES
ONTARIO 1935 AND 1936 AVERAGE

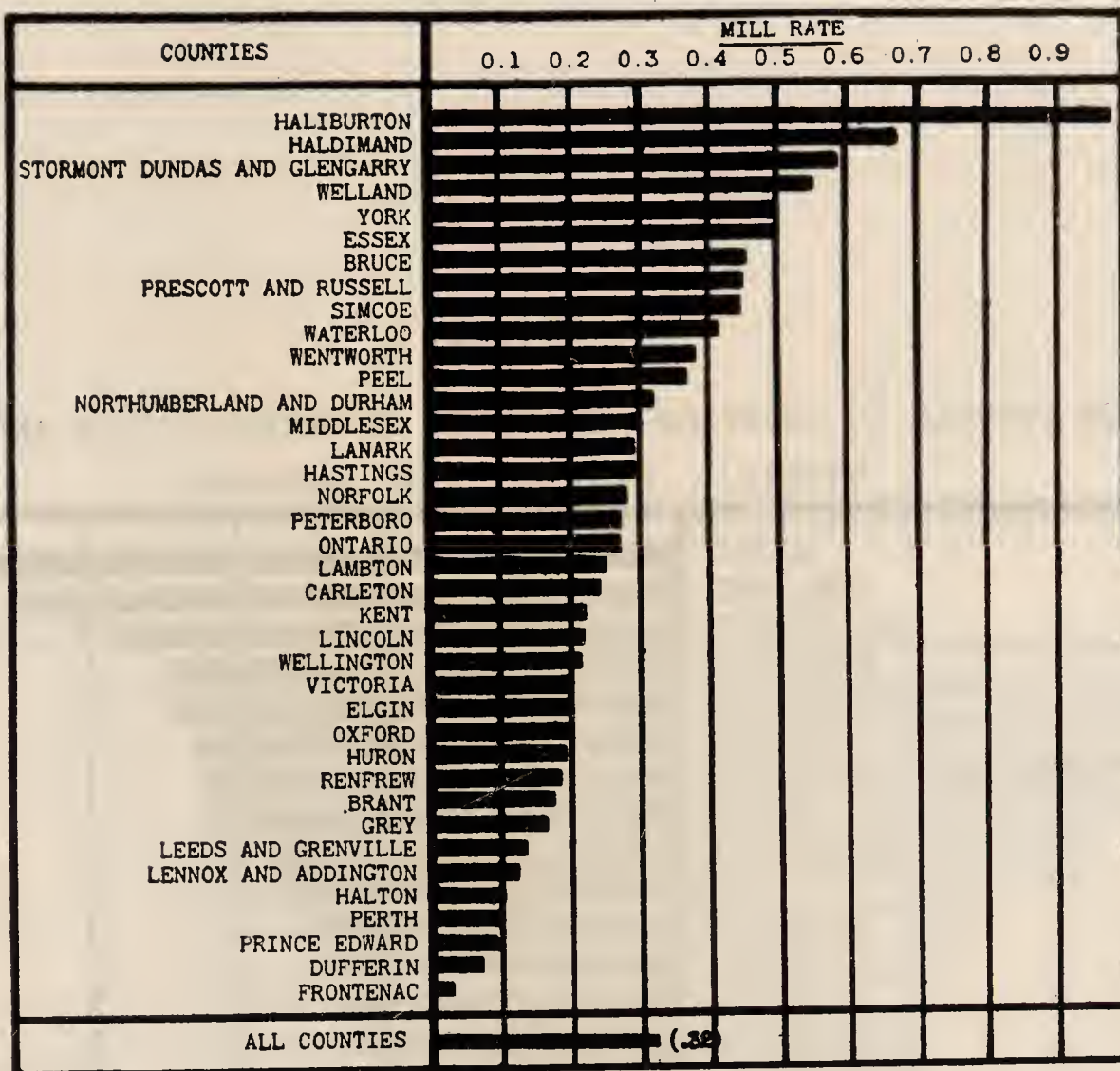
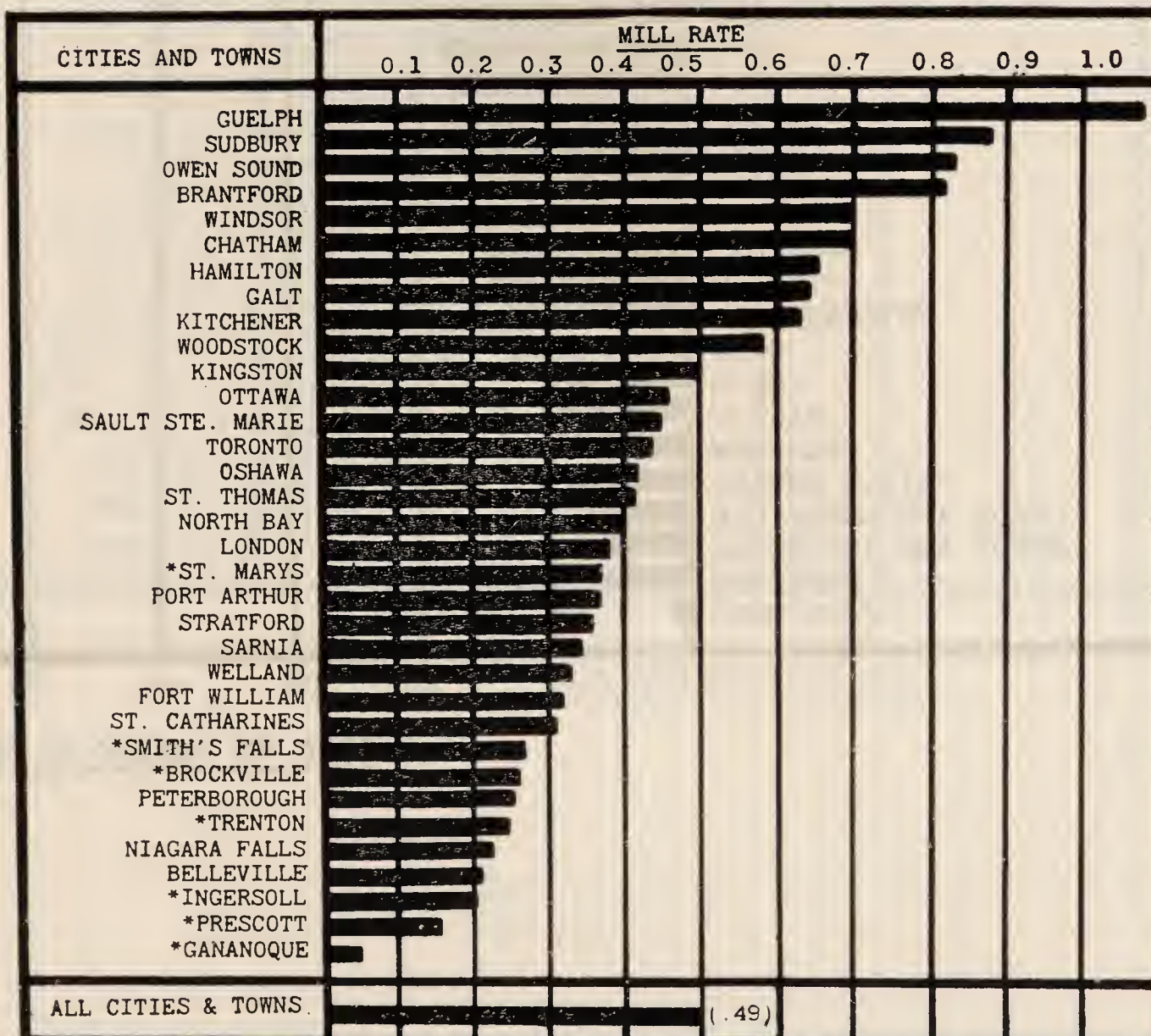


CHART IV

SANATORIUM CHARGES TO CITIES AND SEPARATED TOWNS
ONTARIO 1935 AND 1936 AVERAGE



* SEPARATED TOWNS

CHART V

SANATORIUM CHARGES TO COUNTIES (EXCLUDING SEPARATED CITIES AND TOWNS)
ONTARIO - 1935 AND 1936 (AVERAGE)

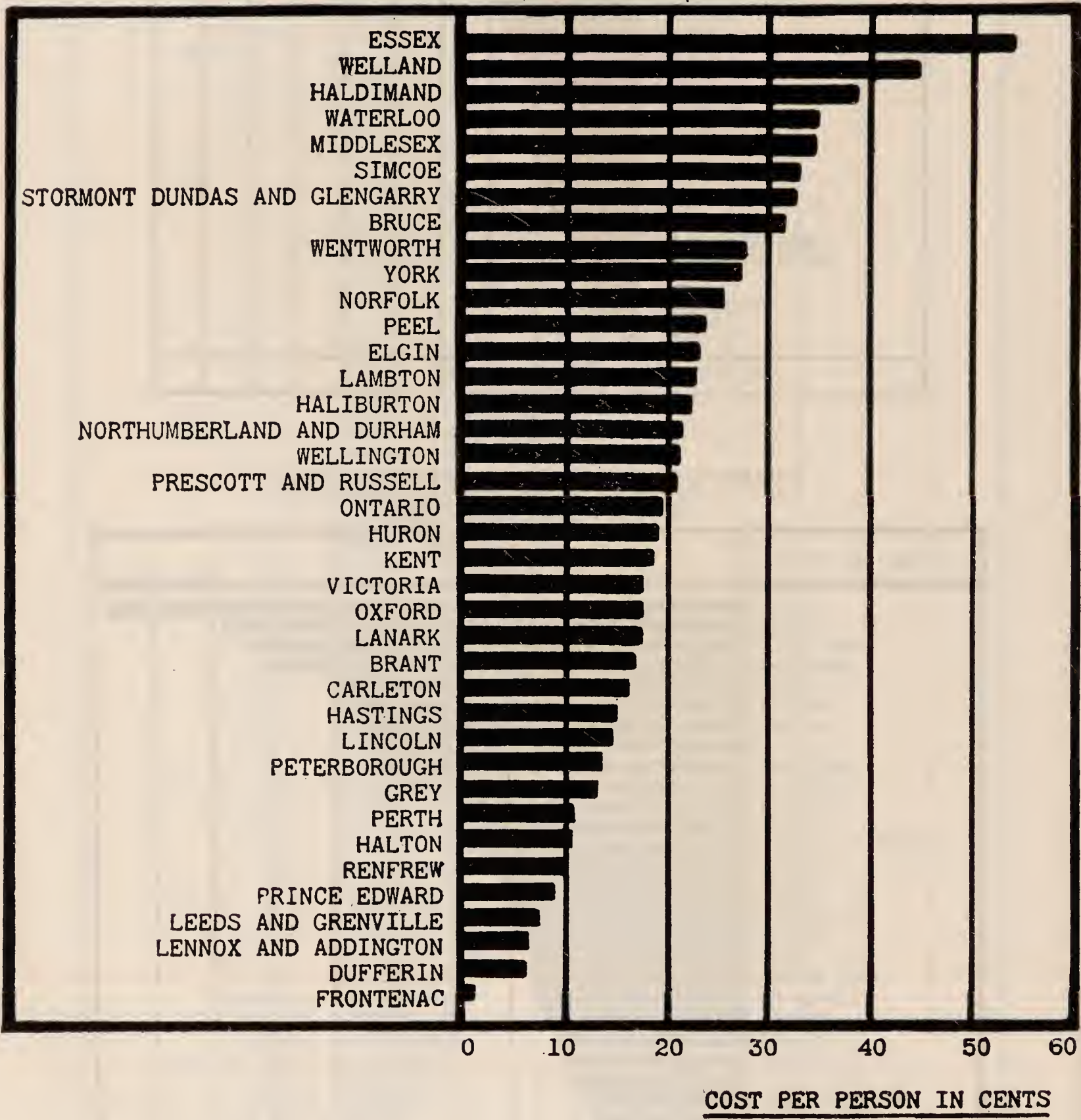
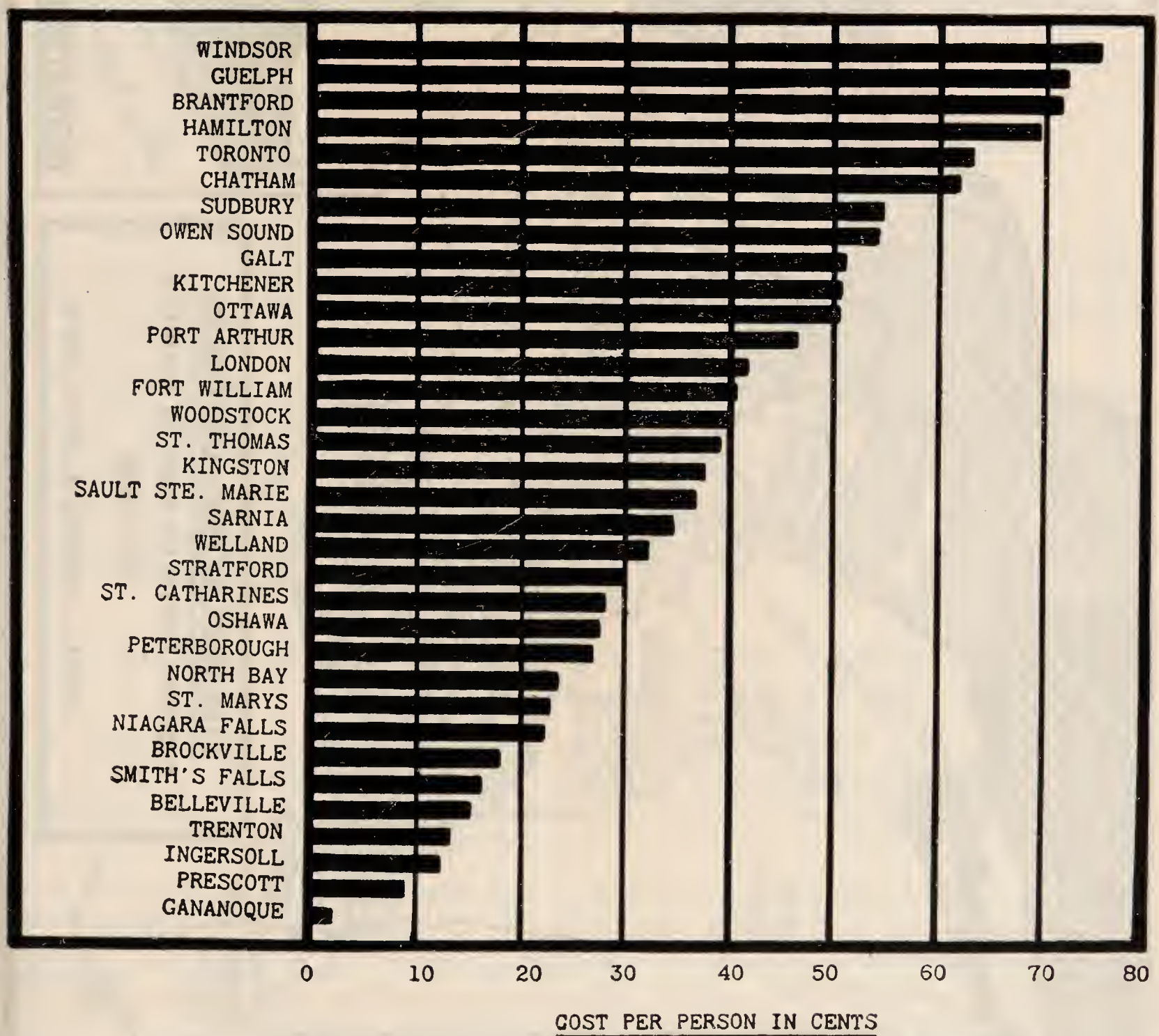
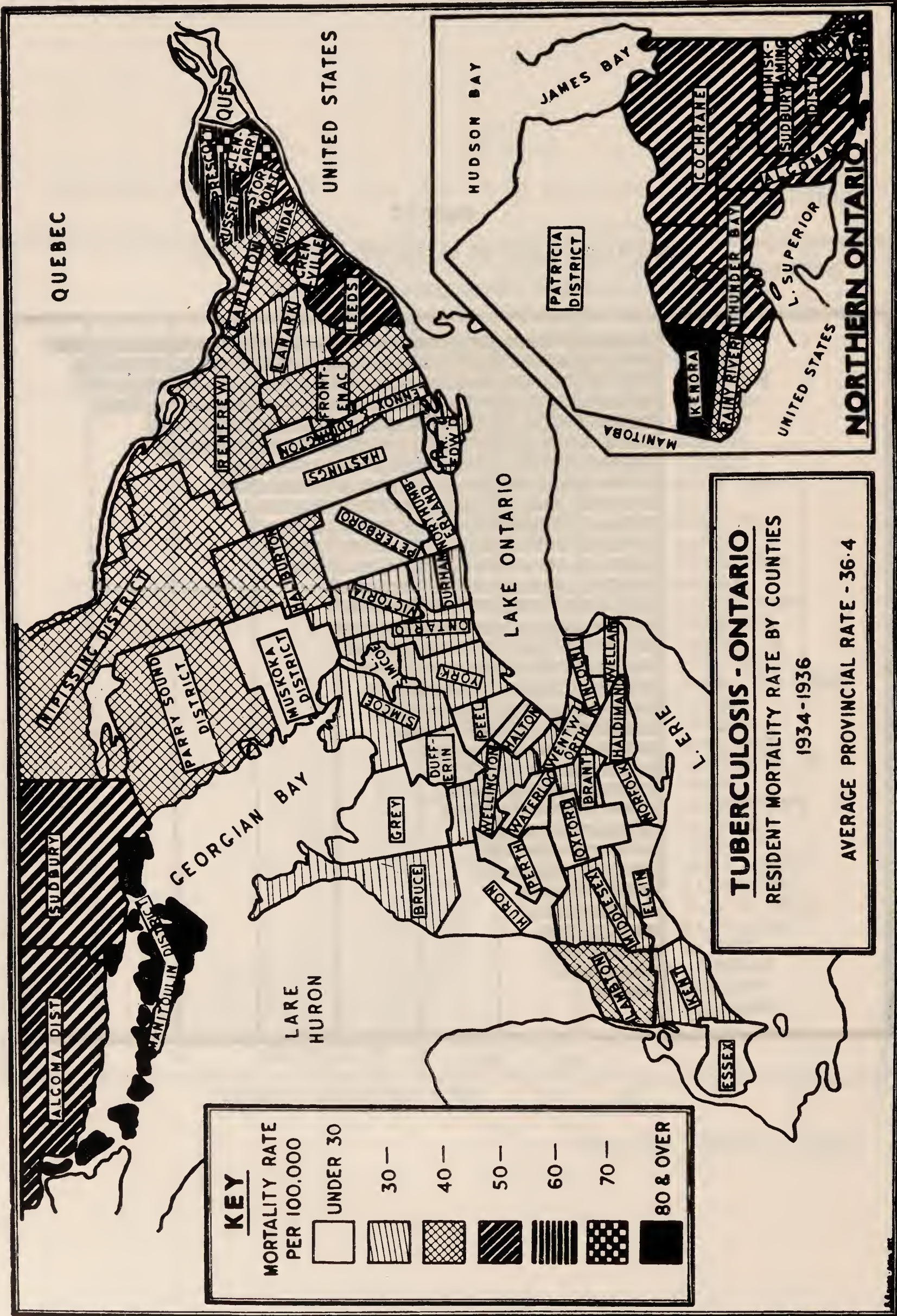


CHART VI

SANATORIUM CHARGES TO CITIES AND SEPARATED TOWNS

ONTARIO - 1935 AND 1936 (AVERAGE)





CLINIC WORK AMONG THE TREATY INDIANS

Following a Conference of Representatives of each Province with the officials of the Indian Affairs Branch of the Department of Mines and Resources, Dominion Government, \$50,000.00 was allotted for diagnostic and treatment purposes among the Indians in Ontario.

The Division carried out diagnostic work among certain groups of Treaty Indians as described below. Altogether 2511 Indians were examined. 283 were found to have tuberculous disease, 98 of whom were recommended for sanatorium treatment.

(a) Tuberculosis surveys were made of 1151 children in 9 Indian Residential Schools, viz.: at Chapleau, Spanish (2), Sault Ste. Marie, Sioux Lookout, McIntosh, Kenora (2) and Fort Frances.

(b) 75 children were examined at St. Joseph's Orphanage, Fort William.

(c) A survey was made of 1056 Indians from the Rama Reserve and from the Reserves on the Eastern part of Manitoulin Island.

(d) 229 Indians were referred to our Clinics held in various centres.

For detailed information, see Table I.

That the \$50,000.00 was quite insufficient to meet the needs of sanatorium care for Treaty Indians in Ontario is apparent when it is realized that not 30% of those active cases recommended for sanatorium care were under treatment at the end of the year.

Tuberculosis control among the Indians in Ontario is very inadequate and the problem constitutes a menace to the white population. This can easily be seen by reference to charts No. 1 to 7. Manitoulin Island shows a tuberculosis mortality rate well over 130 per 100,000 people. According to the report of the Registrar-General there were sixteen deaths from tuberculosis in 1937 among residents of Manitoulin Island, fifteen of which occurred among the Indian population.

REPORT ON THE WORK DONE BY THE DEPARTMENT'S
TRAVELLING CHEST CLINICS

During 1938, Travelling Chest Clinics have operated with headquarters in Toronto, Ottawa, Belleville, Fort William, Timmins and North Bay. One hundred and twenty-six Clinics were held; 100 centres being visited. Seven centres were visited for the first time.

The Clinic, with headquarters in Toronto, conducted thirty-two clinics, visiting the following centres:—St. Thomas, Ridgeway, Leamington, Amherstburg, Aylmer, Tillsonburg, Midland, Penetang, Listowel, Palmerston, Hanover, Chapleau, Spanish, Sault Ste. Marie, Bobcaygeon, Newmarket, Cornwall, Peterborough, Brockville, Lindsay, Shelburne, Orangeville, Flesherton, Meaford, Wiarton, Southampton, Owen Sound, Kincardine, Walkerton, Lucknow, Wingham, Oshawa.

The Clinic, with headquarters in Ottawa, conducted fourteen clinics, in the following centres:—Prescott, Arnprior, Smith's Falls, Perth, Alexandria, Renfrew, Casselman, Hawkesbury, Plantagenet, Rockland, Kemptville, Carleton Place, Almonte and Ottawa.

The Clinic, with headquarters in Belleville, conducted monthly clinics in Belleville and also held seventeen clinics in Cobourg, Port Hope, Deseronto,

Napanee, Colborne, Tweed, Gananoque (2 clinics), Hastings, Campbellford, Havelock, Madoc, Bancroft, Haliburton, Stirling, Brighton and Marmora.

In addition to the regular clinic work, 11 chest aspirations were done, 457 fluoroscopic examinations were made and 439 pneumothorax refills given, approximately twice as many as in 1937 and five times as many as in 1936.

The Clinic, with headquarters in Fort William, conducted twenty-eight clinics in the following centres:—Dryden (2), Kenora (3), Sioux Lookout (3) Fort Frances (3), Rainy River (2), Emo (2), Schrieber (2), Nipigon (2), Geraldton, Nakina, Armstrong, McIntosh and Fort William (2).

The Clinic with headquarters in North Bay, conducted fifteen clinics in North Bay (monthly); Kirkland Lake, Cochrane, Kapuskasing, Sturgeon Falls, Sudbury, Gore Bay, Mindemoya, Little Current, Espanola, Blind River, Thessalon, Bruce Mines, Richard's Landing, Sault Ste. Marie.

The Clinic with headquarters in Timmins, conducted almost a permanent clinic in Timmins and in addition conducted ten clinics in the following centres—Cochrane (2), Iroquois Falls (2), Larder Lake, Kirkland Lake, Hearst, Englehart, Kapuskasing and Smooth Rock Falls.

The following tables give a summary of the work done:

Table II—General summary.

Tables III, IV and V—Give details in respect to newly discovered cases.

Tables VI and VII—Give details in regard to individuals recommended for sanatorium treatment.

Table VIII—Gives information re changes in diagnoses in repeat examinations.

Table IX—Gives details regarding the present condition of ex-sanatorium patients who were examined at the Clinics.

TABLE I
CLINIC EXAMINATIONS OF TREATY INDIANS—1938

FINDINGS	Number	% of Those with Tuberculosis Disease	% of Those with Pulmonary Tuberculosis	% of Total Cases Exemined
1. Tuberculous Disease—.....	283	.....	.....	11.0
(a) Active Disease.....	135	47.7	.....	.....
Inactive Disease.....	148	52.3	.....	.....
(b) Cases previously diagnosed.....	30	10.6	.....	.....
New Cases Discovered.....	253	89.0	.....	.....
(c) Pulmonary Tuberculosis.....	273	97.0	.....	.....
Advanced.....	30	.....	10.9	.....
Moderately Advanced.....	40	.....	14.6	.....
Minimal.....	87	.....	31.8	.....
Childhood Type.....	116	.....	42.4	.....
(d) Extra-Pulmonary Tuberculosis..	10	3.5	.....	.....
(e) Recommended for Sanatorium...	98	35.0	.....	4.0
2. Suspicious of Tuberculous Disease.....	65	.....	.....	3.0
3. Non-Tuberculous Pulmonary Condi- tions.....	22	.....	.....	1.0
4. No evidence of any Lung Disease.....	2141	.....	.....	85.0
Total Number of Cases Examined.....	2511	.....	.....	100%

TABLE II
SUMMARY OF CLINIC WORK

		Toronto	Ottawa	Tim- mins	Belle- ville	North Bay	Ft. Williams	Totals
1. Tuberculous Disease.....	1st Ex. Repeat	215 255	91 224	167 307	69 215	90 224	244 129	876 1354
(a) Active Disease.....	1st Ex. Repeat	96 37	43 34	59 37	44 39	62 44	95 27	399 218
Inactive Disease.....	1st Ex. Repeat	119 218	48 190	108 270	25 176	28 180	149 102	477 1136
(b) Cases previously diagnosed.....	1st Ex. Repeat	68 250	22 205	59 295	3 211	25 218	40 124	217 1303
Newly Discovered Cases.....	1st Ex. Repeat	147 5	69 19	108 12	64 3	65 6	204 5	657 50
(c) Pulmonary Tuberculosis.....	1st Ex. Repeat	215 255	91 224	167 307	67 214	89 224	230 125	859 1349
Childhood.....	1st Ex. Repeat	42 35	9 14	41 85	9 7	8 17	121 41	230 199
Minimal.....	1st Ex. Repeat	70 110	48 128	64 138	35 98	34 111	52 28	303 613
Moderately Advanced.....	1st Ex. Repeat	67 88	18 63	39 64	12 85	21 57	37 38	194 395
Advanced.....	1st Ex. Repeat	36 22	16 19	23 20	11 24	26 39	20 18	132 142
(d) Extra-Pulmonary Disease.....	1st Ex. Repeat	0 0	0 0	0 0	2 1	1 0	14 4	17 5
(e) Recommended for Sanatorium.....	1st Ex. Repeat	79 36	33 37	59 34	27 30	47 31	64 16	309 184
2. Suspects.....	1st Ex. Repeat	51 14	11 4	25 25	19 18	15 7	53 8	174 76
3. Non-Tuberculous Conditions.....	1st Ex. Repeat	99 41	58 50	62 23	99 50	62 46	123 40	503 250
4. No Disease.....	1st Ex. Repeat	1838 737	857 573	1217 512	1027 338	1141 483	1420 215	7500 2858
TOTALS.....	1st Ex. Repeat	2203 1047	1017 851	1471 867	1214 621	1308 760	1840 392	9053 4538
TOTAL NO. OF EXAMINATIONS.....		3250	1868	2338	1835	2068	2232	13591

1st—1st Examination.
R —Repeat Examination.
S —Recommended for Sanatorium.

[illegible]

TABLE IV.
SUMMARY OF NEWLY DISCOVERED CASES

	No.	% of Total	% of Number with Adult Type of Disease
Childhood Type—(Primary infection).....	222	31.4	.....
Minimal.....	269	38.0	55.4
Moderately Advanced.....	122	17.2	25.1
Advanced.....	88	12.4	18.1
Extra Pulmonary.....	6	.8	1.3

419 or 59.2% of the total (707) gave a history of contact with tuberculous disease, and 304 or 43.0% of these attended the clinic on account of contact only and thus would only have been discovered by routine examination; in many other contacts the symptoms were so slight as not to warrant their seeking medical advice.

277 or 39.1% of the newly discovered cases were recommended for sanatorium treatment.

TABLE V
TABLE SHOWING RELATION OF NUMBER OF NEW
CASES DISCOVERED TO NUMBER OF CONTACTS
EXAMINED

Age Groups	No. Contacts Examined for First Time	No. Cases of Disease Found	% of Contacts Examined
0 1 9	640	80	12.5
10 1 19	1437	157	10.9
20 1 29	867	58	6.7
30 1 39	528	42	7.7
40 1 49	272	17	6.2
50 & Over	235	32	13.6
	2916	386	13.2

TABLE VII
SUMMARY OF CASES RECOMMENDED FOR SANATORIUM TREATMENT

	Number	Percentage of Total	Percentage of Number with Adult Type of Disease
Childhood Type (Primary Infection).....	27	5.4	.....
Minimal.....	153	31.0	33.7
Moderately Advanced.....	141	28.6	31.1
Advanced.....	159	32.2	35.1
Pleurisy with Effusion.....	3	.6	.....
Extra-Pulmonary Tuberculosis.....	3	.6	.....
Suspects.....	2	.4	.....
Non-Tuberculous Chest Conditions.....	5	1.0	.....

TABLE VIII
DIAGNOSIS AT CLINIC EXAMINATION IN 1938

PREVIOUS DIAGNOSIS		Totals	No Change	No Disease	Suspects	Ch.		Min.		Mod. Adv.		Adv.		Thick Pleura	Lung Abscess	Pl. with Effusion	Bronchi- ectasis	Non Tbc. Cond.
	No. Dis.	2856	2781	....	22	A.	I.	A.	I.	A.	I.	A.	I.					
	Susp.....	115	57	42	....	1	....	4	8	....	1	....	....	1	....	....	....	1
	Ch.....				....	4	....	1	1	....	....	....	....	1	....	....	....	....
					....	....	5	....	....	1	....	....	....	....	....	....	....	....
	Min.....				2	....	1	17	1	5	3	....	....	....	....	....	....	1
					1	....	1	....	38	3	1	1	....	1	....	....	....	....
	Mod. Adv.				....	....	....	1	5	12	....	2	....	....	....	....	....	....
					....	....	....	1	2	....	14	4	....	....	....	....	....	1
	Adv.....				....	....	....	....	....	....	....	4	....	....	....	....	....	....
					....	....	....	....	2	....	3	....	6	....	1	....	....	....
Thicken Pl.....		54	47	4	....	....	....	....	1	1	....	....	....	....	....	1	....	....
Bronchiec- tasis.....		11	7	2	....	....	....	....	....	1	....	1	....	....	....	....	....	....
Pl. with Effusion		11	....	3	....	....	....	....	1	....	....	....	....	7	....	....	....	....
Pn.....		1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Non. Tbc. Cond.....		182	172	7	....	....	....	....	1	....	....	1	....	1	....	....	....	....

Remarks Regarding Table VIII:

- (a) Of 2856 showing no disease on previous examination, 42 or 1.4% developed definite disease.
- (b) Of 980 cases of inactive adult type of disease, 41 or 4.2% had become reactivated.
- (c) Of 115 suspects 14 or 1.2% developed some type of disease.
- (d) Of 213 previously classified as childhood or primary infection type, only 3 or 1% developed an adult type of disease.
- (e) Of 68 minimal active cases 38 or 55.8% had become inactive and only 13 or 2% of the minimal cases had progressed to moderately advanced or advanced.
- (f) Of 62 moderately advanced active cases, 14 or 22.5% had become inactive.

TABLE IX

CLASSIFICATION (on last examination) OF PATIENTS WHO HAD RECEIVED
SANATORIUM TREATMENT

Age Groups	Sex	No Disease	Suspects	Non-Tuber- culous Chest Conditions	Childhood		Minimal		Mod. Adv.		Advanced	
					Ac- tive	Inac- tive	Ac- tive	Inac- tive	Ac- tive	Inac- tive	Ac- tive	Inac- tive
0 1 9	M F	 1	.... ....	.... ....	.... ....	2 1	.... ....	3 ....	.... ....	.... ....	.... ....	.... ....
10 1 19	M F	2 3	.... ....	1 ....	.... ....	3 2	 2	5 15	 1	6 7	1	2
20 1 29	M F	2 11	.... ....	.... ....	.... ....	1	 3	13 31	1 2	33 74	4 2	8 12
30 1 39	M F	4 5	.... ....	2 1	.... ....	1	4	12 22	5 3	32 40	11 5	13 11
40 1 49	M F	5 1	1	1 ....	.... ....	.... ....	.... 2	7 8	2 1	20 11	6 3	9 4
50	M F	1 2	.... ....	2 2	.... ....	.... ....	1 3	8 3	.... ....	14 4	5 3	1 2
Totals	M	14	1	6	....	7	4	48	8	105	27	33
	F	23	0	3	....	3	8	79	7	136	13	29
		554	37	9	...	10	12	127	15	241	40	62

Remarks on Table IX:

554 examinations were made on patients who had received treatment in sanatorium; in 37 or 6.7% tuberculosis was no longer considered a factor in their condition. Of the 507 with definite tuberculous disease, 67 or 13.2% were still considered to have active disease in need of further treatment while 440 or 86.8% were considered to have inactive disease.

TUBERCULIN TESTING AND X-RAYING OF STUDENTS IN NORMAL SCHOOLS, THE COLLEGE OF EDUCATION AND THE TECHNICAL TEACHERS' TRAINING COLLEGE

The Division co-operated once more with the Department of Education in tuberculin testing and x-raying of students seeking admission to the Normal Schools, College of Education, and the Technical Teachers' Training College.

All tuberculin tests, and the x-raying of the positive reactors, were carried out by the staff of this Division.

The following Table X gives a summary of the findings:

TABLE X

RESULTS OF TUBERCULIN TESTING AND X-RAYING OF STUDENTS IN NORMAL SCHOOLS, COLLEGE OF EDUCATION AND AT THE TECHNICAL TEACHERS' TRAINING COLLEGE

	Number Enrolled	Number Tested	Number Positive Reactors	Percentage Positive Reactors	Number Negative Reactors	Percentage Negative Reactors	Number X-rayed	Number Showing Evidence of Active Tubercu- lous Disease	Percentage of Total Enrolment
Normal Schools.....	950	841	200	23.7	641	76.3	216	10	1.0
College of Education...	317	272	107	38.6	165	61.4	150	0	0
Technical Teachers' Training College.....	19	0	.....	.....	.....	.....	19	0	0

TUBERCULIN TESTING AND X-RAYING OF NURSES IN GENERAL HOSPITALS, HOMES FOR INCURABLES, AND SANATORIA

Supervision was given to the carrying out of the regulations in respect to tuberculin testing and x-ray work on the nursing staff of all general hospitals, homes for incurables, and sanatoria. (See Tables XI and XII).

All hospitals made returns and the reports were received more promptly than in former years.

The fact that 24 graduates and 18 student nurses were found to have tuberculous disease and required sanatorium treatment shows the importance of the control of the disease in this group of young women. This would point to the constant danger of infection in the hospitals and raises the question as to whether all persons admitted to general hospitals should receive chest x-ray examinations.

TABLE XI
GRADUATE NURSES

	No. Reported	No. Pos. Reactors	% Pos. Reactors	No. Neg. Reactors	% Neg. Reactors	No. X-Rayed	No. New Cases Disease	No. Old Cases Disease
Gen. and Red Cross Hosps.....	2279	1602	70.6	610	26.9	1586	20	10
Homes for Incurables.....	143	93	65.0	50	35.0	90	0	0
Sanatoria.....	504	471	93.4	33	6.6	485	15	9
	2926	2166	74.3	693	23.9	2161	35	19

CLASSIFICATION OF DISEASES

DISPOSAL

1. NEW CASES:
- *17 minimal, active.....

13 went to sanatorium.
4 went home.
- 11 Minimal, inactive.....

10 are on duty.
1 went home.
- *1 fistula in ano.....

went to sanatorium.
- *4 moderate, active.....

went to sanatorium.
- *1 pleurisy with effusion.....

went home.
- *1 Pott's disease.....

went to sanatorium.
- 1 suspect.....

went home.
- *Summary—24 cases found requiring treatment.
2. KNOWN CASES:
- 17 minimal, inactive.....

on duty.
- 2 moderate, inactive.....

on duty.

TABLE XII
UNDERGRADUATE NURSES

	No. Reported	No. Pos. Reactors	% Pos. Reactors	No. Neg. Reactors	% Neg. Reactors	No. X-Rayed	No. New Cases Disease	No. Old Cases Disease
General Hospitals.....	4641	2208	47.5	2436	52.4	2331	23	2
Homes for Incurables.....	72	50	69.4	22	30.6	60	0	0
Sanatoria.....	95	93	97.9	2	2.1	92	1	7
	4808	2351	46.8	2460	51.1	2483	24	9

CLASSIFICATION OF DISEASE

DISPOSAL

1. NEW CASES:	
*11 minimal, active.....	5 went home 6 went to sanatorium.
6 minimal, inactive.....	5 are on duty. *1 went to sanatorium.
* 3 moderate, active	all went to sanatorium
* 2 pleurisy with effusion.....	both went home.
2 advanced, active.....	*1 went to sanatorium. 1 died in hospital.
2 suspects.....	went home.
*Summary—18 cases found requiring treatment.	
2. KNOWN CASES:	
5 minimal, inactive.....	all on duty.
3 moderate, inactive.....	all on duty.
1 advanced, inactive.....	on duty.

The Division staff has assisted in tuberculosis surveys among the high-school students of Belleville, Brantford, Weston, Scarborough Township, and Agincourt.

Supervision has been given to periodic examinations among the boys and girls in the Industrial Schools, as well as those young women receiving instruction in the five Home Service Training Schools.

Practically all applicants for positions in the Department of Health have been examined and x-rayed.

Interpretation has been given to some hundreds of films sent in by general hospitals.

The Division was very unfortunate in losing the services of three physicians during the year:

Dr. A. Powers, Ottawa Unit, accepted the superintendency of the Hull Sanatorium, Quebec.

Dr. E. R. Harris, North Bay Unit, was appointed Medical Officer of Health of Kirkland Lake (Teck Township).

Dr. G. W. Cragg, Central Office, received the appointment of Superintendent of the St. Lawrence Sanatorium, Cornwall.

Dr. D. McCallum, of the staff of the Muskoka Hospital for Consumptives, Gravenhurst, and Dr. H. H. Washburn, of the Queen Alexandra Sanatorium, London, were appointed to the staff, taking charge of the Ottawa and North Bay Units, respectively. Dr. J. S. Hazen, of the Mountain Sanatorium, Hamilton, replaced Dr. Cragg in the Central Office.

ESTIMATE OF COST OF EACH CLINIC EXAMINATION

Total amount expended by Division.....	\$ 73,750 63
Less salaries of Director and Secretary.....	6,300 00
	\$ 67,450 63
Total Number of clinic examinations.....	13,591
Average cost.....	\$ 4 96

THE COST OF DISCOVERING A CASE OF TUBERCULOUS DISEASE

(Based on Average Cost of \$4.96 per Clinic Examination)

Age Groups	No. of 1st Exams.	Total Cost of Exam.	No. of Cases of Tub. Dis. Discovered	Average Cost per Case	No. of Cases Discovered Req. San. Treatment	Average Cost of Discovering a Case Req. San. Treatment
0 to 9	1310	\$ 6,497 60	87	\$74 68	22	\$295 34
10 to 19	2857	14,170 72	218	65 00	66	214 70
20 to 29	2009	9,964 64	105	94 90	62	160 72
30 to 39	1378	6,834 88	90	75 94	36	189 86
40 to 49	817	4,052 32	65	62 34	31	130 72
50 and over	692	3,432 32	92	37 30	37	92 76
Total	9053	\$ 44,952 48	657	\$68 42	254	\$176 97

AVERAGE COST OF DISCOVERING A NEW CASE OF TUBERCULOUS DISEASE BY REPEAT EXAMINATIONS (BASED ON AVERAGE COST OF \$4.96 PER CLINIC EXAMINATION)

There were 4538 repeat examinations—the cost for this service being.....\$ 22,509 08
There were 50 new cases of tuberculous disease found—the average cost being 450 19
23 of these were recommended for sanatorium treatment—The average cost being..... 988 65

With the passing of the Amendments to the Sanatorium for Consumptives Act and the Regulations thereto, effective July 1st, 1938, it seemed necessary to have attached to this Division a Sanatorium Medical Inspector. Since the Provincial Government is now contributing approximately ninety-five per cent. of the operating revenue of sanatoria it is obvious that the Department of Health should be assured that sanatorium treatment is being afforded to only those properly requiring such and that the length of stay in sanatorium is not unnecessarily prolonged.

In July, 1938, Dr. C. A. Wicks was transferred from the Hospitals Division to this Division to undertake the visiting of sanatoria as the major portion of his duties. Since his appointment, one visit has been made to nine of the thirteen sanatoria. At each visit, the following is accomplished:

(a) A review of the case records and x-rays of every patient under treatment with the physicians in charge. A card is completed in every case giving rather detailed information including types of treatment received. These cards are on file in this office.

(b) Securing answers from the Medical Superintendent to a large series of questions which serves as a survey of bed capacity, facilities for treatment, etc., as well as the management and operation of various services within the sanatorium.

(c) Interviewing those patients from unorganized territory who are without municipal residence for whom the Department of Health is responsible for after-care, where assistance is required.

(d) At a conference with the Director following each visit, problem cases are discussed and a letter sent to the Medical Superintendent regarding the cases which have presented difficulties.

(e) The information upon the individual cards is collected and tabulated following each visit. In this manner, the treatment being afforded patients at particular sanatoria is shown very clearly. As well as types of treatment, this analysis also includes age groups, occupation, duration of residence in sanatorium, etc., as well as the ratio of staff to patients, treatment facilities available and other services rendered.

At the present time a complete report is being prepared from this information which will be included in the next Annual Report of this Division.

Dr. Wicks has also undertaken the supervision and follow-up work in connection with those ex-sanatorium patients whose after-care is the responsibility of the Department of Health. Periodic medical reports are obtained upon such ex-patients to determine when after-care is no longer required.

The inauguration of the new programme placed additional responsibility in the matter of accounting on this Division. It was felt necessary to have an accountant appointed to assume the responsibility of examining the business and financial organization. In this capacity Mr. Beauchamp joined the staff of the Division in July. His chief duty is to inform the Department whether or not the existing accounting systems in sanatoria provide adequate accountability of the financial status and operations of the institutions insofar as they concern the Department. Nine institutions have been surveyed, and the findings would indicate that in many cases the business organization has not kept pace with the phenomenal growth of sanatoria in general.

The most effective means of assuring the Department of economic disposition of the grants it makes to the various sanatoria lies in its ability to make dependable comparisons of the cost of rendering similar services in different institutions. Unfortunately the existing accounting systems have not been designed around the hospital services and at the present time there is no common unit or units by which sanatoria can be justly compared. It is hoped that after completion of his survey of sanatoria, Mr. Beauchamp will be able to present for consideration a uniform accounting system which will be acceptable to both sanatoria and the Department. In this way the Department can determine the value received for the money expended.

Tables XIII and XIV show the changes in Tuberculosis Death Rates comparing the periods 1924 to 1928, and 1933 to 1937.

TABLE XIII

Age Group	MALES				FEMALES				Percent Decrease	
	1924-1928		1933-1937		1924-1928		1933-1937		Males	Females
	Deaths	Rate*	Deaths	Rate*	Deaths	Rate*	Deaths	Rate*		
Under 1 yr.	94	61.8	51	32.7	87	59.2	32	21.3	47.1	64.0
1	69	45.8	57	36.4	75	51.0	37	24.3	20.5	52.4
2	43	27.7	30	18.0	42	27.9	36	22.2	35.0	20.4
3	33	21.2	35	20.8	37	24.3	19	11.5	1.9	52.7
4	21	13.2	19	11.1	33	21.5	10	6.2	15.9	71.2
5 - 9	87	10.8	83	9.4	112	14.2	75	8.7	13.0	38.7
10 - 14	122	16.3	67	7.9	174	23.8	80	9.7	51.5	59.2
15 - 19	257	35.6	164	19.2	488	69.7	283	34.7	46.1	50.2
20 - 24	434	66.3	302	39.1	699	105.1	478	63.5	41.0	39.6
25 - 29	512	81.0	315	44.2	584	94.0	435	64.5	45.4	31.4
30 - 34	484	77.2	320	47.5	490	80.7	307	47.4	38.5	41.3
35 - 39	450	78.8	357	54.2	375	69.3	236	37.2	31.2	46.3
40 - 44	395	73.3	337	54.5	338	66.8	194	33.5	25.6	49.9
45 - 49	341	73.1	323	57.0	238	55.4	179	34.8	22.0	37.2
50 - 59	524	72.7	595	70.2	389	56.6	253	31.6	3.4	44.2
60 - 69	383	81.7	389	71.5	293	63.9	232	42.7	12.5	33.2
70 - 79	182	78.9	188	65.1	157	67.0	162	54.4	17.5	18.8
80 plus	24	38.1	24	33.6	39	54.3	39	45.9	11.8	15.5

*Based on population at ages, estimated for 1926 and 1935.

TABLE XIV

MORTALITY FROM TUBERCULOSIS BY AGE ONTARIO 1924-28 AND 1933-37

AGE	1924-1928		1933-1937		Per Cent. Decrease
	Deaths	Rate*	Deaths	Rate*	
Under 1 yr.	181	60.5	83	27.2	55.0
1	144	48.4	94	30.4	37.2
2	85	27.8	66	20.1	27.7
3	70	22.7	54	16.1	29.1
4	54	17.3	29	8.7	49.7
5 - 9	199	12.5	158	9.1	27.2
10 - 14	296	20.0	147	8.8	56.0
15 - 19	745	51.4	447	26.8	47.9
20 - 24	1133	85.9	780	51.1	40.5
25 - 29	1096	87.3	750	54.1	38.0
30 - 34	974	78.9	627	47.4	39.9
35 - 39	825	74.2	593	45.9	38.1
40 - 44	733	70.2	531	44.3	36.9
45 - 49	579	64.6	502	46.3	28.3
50 - 59	913	64.8	848	51.4	20.7
60 - 69	676	71.9	621	57.1	20.6
70 - 79	339	72.9	350	59.7	18.1
80 and over	63	46.3	63	40.3	13.0
All Ages	9133	57.7	6747	37.5	35.0

*Per 100,000 estimated population at ages for 1926 and 1935.

DIVISION OF LABORATORIES

A. L. MACNABB, B.V.Sc., *Director*

The volume of work conducted by the Division of Laboratories during the year 1938 shows an increase of 64,428 examinations over the previous year.

The Central Laboratory now has a staff of 67 members. Of this number, five are employed in overtime duty. The Central Laboratory is open for the reception and examination of specimens from 6 a.m. to 12 midnight.

During the past year, two members of the Central Laboratory staff resigned, one member was superannuated on account of ill health and five transfers were effected in the Division. Dr. Jas. W. Bell was transferred to the Central Laboratory staff, Dr. A. E. Allin to the Directorship of the Fort William Branch Laboratory, Mr. A. D. McClure, B.A., was transferred to the Directorship of the North Bay Branch Laboratory, replacing Dr. W. M. Wilson, who was transferred to the Central Laboratory, and Miss Evelyn Tuft was transferred to the North Bay Branch. This latter transfer was necessitated due to the marked increase in the volume of work at the North Bay Laboratory. Dr. Stuart Penny was appointed to the staff of the Laboratory Division. Dr. Penny is now serving in the capacity of Pathologist at the Central Laboratory, replacing Dr. H. A. Ansley, who is at present on leave-of-absence.

Papers Presented.

The following presentations were made at the Ontario Health Officers' Association meeting this year:

- (1) Recent Advances in the Preparation of Typhoid Paratyphoid Vaccine
- (2) Preparation of Pertussis Vaccine.
- (3) The Opsono-cytophagocytic Diagnostic Test for Undulant Fever, Supplementing the Agglutination Test.
- (4) Recent Advances in the Serology of Syphilis.
- (5) Pneumococcus Typing by the Neufeld Method.

At the Christmas meeting of the Laboratory Section of the Canadian Public Health Association the following papers were presented:

- (1) (a) Preparation of Pertussis Vaccine.
(b) The Selection of Strains for the Preparation of Pertussis Vaccine.
- (2) The use of S. para B. Type and Group Antigen in the Routine Diagnostic Agglutination Test for the Diagnosis of Paratyphoid B. Infection.
- (3) Phosphatase Test as an Index for Determining the Efficacy of Pasteurization.

- (4) Pneumococcus Typing by the Neufeld Method and the Results of 100 Serum Treated Cases.
- (5) Concentration Methods for the Microscopic Smear Examination of Tubercle Bacilli.

In addition to these, the Director presented a paper at the American Public Health Association Meeting held in Kansas City last October, on "The Primary Isolation of Tubercle Bacilli by Cultural Methods."

Papers Published.

- (1) Frozen Section Technique for Pathological Tissue Specimens.
- (2) Pneumococcus Typing.
- (3) Bacteriological Study of Material from Eating and Drinking Utensils.

Investigational Work.

Investigational work has been conducted in connection with the following:

- (1) Leptospira.
- (2) Routine work in connection with pneumococcus typing.
Forty-five strains have been isolated which did not fall in Types One to Thirty.
Serum has been prepared from some of these strains in an effort to determine whether or not these unidentified types of pneumococcus fall into one or several types.
- (3) An extensive study in connection with the application and use of the phosphatase test was conducted. This paper is now ready for publication.
- (4) A further study has been conducted on the various methods of preliminary treatment of specimens for the primary isolation of Tubercle Bacilli. The results of this work will be published during the coming year.

Following is a brief resumé of the work conducted by the Division.

Table I outlines the number and nature of examinations conducted in the Central and each of the Branch Laboratories.

TABLE I
DIVISION OF LABORATORIES—DEPARTMENT OF HEALTH, ONTARIO
ANNUAL REPORT

ROUTINE PROCEDURES		NUMBER OF EXAMINATIONS							
Type of Specimen	To- ronto	Lon- don	Ot- tawa	Fort Wil- liam	King- ston	North Bay	Peter- boro	Sault Ste. Marie	Total
BACTERIOLOGY:									
Diphtheria—Direct Smears.....	1128	1046	1102	524	24	297	138	16	4275
Cultures.....	4995	1307	2618	670	458	413	141	122	10724
Virulence Tests.....	87	10		4		6			107
Kellogg Tests.....	185								185
Further Reports.....	508			404	43	363	504	161	1983

TABLE 1—Continued

Type of Specimen	To- ronto	Lon- don	Ot- tawa	Fort Wil- liam	King- ston	North Bay	Peter- boro	Sault Ste. Marie	Total
Tuberculosis—									
Microscopic Smears.....	10378	5584	2500	1854	2004	1558		2	23880
Guinea Pigs Inoculated.....	1003	7	44	22		78	17		1167
Cultures.....	5032	341	876	688	25	416	4		7382
Pneumo Typing.....	1732	143	21	341	77	137	21		2472
Agglutinations—									
Dried Blood—Typhoid.....	46	59	74	4	2	6	2		193
Para A.....	46	59	74	3		6	2		190
Para B.....	46	59	74	4		6	2		191
B. Abortus.....	46	59	32	3		6	2		148
B. Tularenses.....	46	59		3		6			114
Whole Blood—Typhoid.....	5756	2590	237	641	281	249	89	16	9859
Para A.....	2878	2047	236	359	262	249	88	16	6135
Para B.....	5756	2051	236	698	281	249	88	17	9376
B. Abortus.....	2878	2521	237	377	281	249	178	17	6738
B. Tularenses.....	2878	1062		299		249	88	17	4593
B. Dysentery Flexner.....	42	9							51
B. Dysentery Shiga.....	34			6					40
B. Enteriditis.....									
Feces Examinations.....	1943	696	235	512	155	209	31	17	3798
Blood Cultures.....	3804	1534	126	455	164	273	125	26	6507
(Undulant Fever).....									
Gonorrhea—Smear Examination	17197	3780	4211	3283	1878	4741	1185	1561	37836
Complement Fixation	612								612
Rabies.....	13	8							21
Spinal Fluids.....	394	1088	70	25	169	175	22	13	1956
Miscellaneous.....	12977	4520	395	1784	490	1137	223	1118	22644
Milk.....	5973	3073	7149	2983	1748	1014	1368	1309	24617
Further Tests.....		1851	1440	585	216	265	132	201	4690
Water.....	11603	4447	4325	3756	390	302	1857	3751	30431
Further Tests.....			345	324	859	1690	181		3399
SYPHILIS:									
Dark Field.....	204	20	5	64	9	73	1	4	380
Blood Sera—S. Kahn.....	56424	18166	17476	7828	4962	8219			113075
P. Kahn.....	273	3567		1313		288			5441
K. Wassermann.....	2490	6225	1061	661	5032	1652			17121
D. Kline.....	157	470							627
Hinton.....	54797	13004	16823	6896	4962	6533			103015
Spinal Fluids—S. Kahn.....	2342								2342
K. Wassermann.....	2411								2411
Colloidal Gold.....	1919	1088	365	197		92			3661
Colloidal Mastic.....	1042	1031	144	21		71			2309
Globulin.....	375	1086	546	229	15	266			2517
Quantitative Kahn..... +	115	27	42						184
Total Protein.....	1799								1799
CHEMISTRY:									
Blood Sugar.....	13044	2633	602	439	418	814	214	337	18501
N.P.N.....	6238	1646				407		10	8301
Milk..... +	5973	1917	3504	984	229	1041	1005	1271	15924
Further Tests.....		1475	561		60	1045	739	2521	6401
Water.....	194	38	11					274	517
Further Tests.....			26						26
Coal Samples—Calorific Value...	84								84
Ash.....	84								84
Moisture.....	114								114
Volatile Matter.....	33								33
Miscellaneous.....	3161	508	122	415	58	150	63	1180	5657
Liquors—Alcohol.....	1056								1056
Beer.....	181								181
Spirits.....	364								364
Wines.....	507								507
PATHOLOGY.....	8658	1967			2391		797		13813
A—Tests for Bovine Brucellosis	3525	859							4384
Total Examinations for Year.....	267580	95733	67945	39658	27943	35000	9307	13977	557143

It will be noted that the Division conducted 557,143 examination during the past year. It will be also noted that 2,472 typings for pneumonia were conducted, 341 of which were conducted at the Fort William Branch Laboratory and 137 at the North Bay Branch.

Table II outlines the number of specimens examined in each of the Laboratories from the years 1934 to 1938, inclusive.

TABLE II
NUMBER OF SPECIMENS EXAMINED IN EACH OF THE LABORATORIES
FROM 1934-1938 INCLUSIVE

	1934	1935	1936	1937	1938	Increase over 1937
Toronto.....	201,904	214,755	224,564	244,612	267,580	22,968
London.....	67,487	75,213	75,207	87,794	95,733	7,939
Ottawa.....	56,957	56,468	56,786	59,755	67,945	8,190
Fort William.....	14,934	18,666	24,137	30,014	39,658	9,644
North Bay.....	6,238	8,411	11,773	27,249	35,000	7,751
Kingston.....	16,304	20,723	20,072	22,008	27,943	5,935
Sault Ste. Marie.....	9,572	11,926	11,805	12,225	13,977	1,752
Peterborough.....	7,881	8,893	9,175	9,058	9,307	249

Table III outlines the products prepared and distributed by the Central Laboratory for the year 1938. In addition to the preparation of these biological products, 218,029 outfits were prepared and distributed by the Central and Branch Laboratories.

TABLE III
BIOLOGICAL AND CHEMICAL PRODUCTS PREPARED AND DISTRIBUTED
FROM MAIN LABORATORY DURING YEAR 1938

T. A. B. Vaccine.....	5,541 pkgs.
Pertussis Vaccine.....	20,004 pkgs.
Rabies Vaccine.....	31 pkgs.
Polio Serum.....	257 pkgs.
Silver Nitrate.....	3,086 ozs.
Bismuth Oxychloride.....	179,110 grs.
Mercury Salicylate.....	7,150 grs.
Sodium Hydroxide in the Treatment of V. D. S.....	376 ozs.
Distilled Water in the Treatment of V.D.S.....	65,066 ozs.

Laboratory Animals.

During the year, 60% of the mice and 7.3% of the guinea pigs were raised at or in connection with the Laboratory. Breeding stock now in hand includes 225 guinea pigs, 200 mice, 1 rabbit and 4 rats. Arrangements are being made whereby it is hoped that in future all mice and guinea pigs needed may be raised at the Queen St. Hospital breeding unit.

The following table shows the number of laboratory animals raised in the Laboratory or in the unit at the Queen St. Hospital, and those purchased:

	Mice	Guinea Pigs	Rabbits	All Animals
Raised.....	1,500	100	0	1,600
Purchased	1,000	1,280	176 at \$0.75	2,589
Price each.....	17½c	60c	133 at \$1.00	
Cost of Animals.....	\$175.00	\$768.00	\$265.00	\$ 1,208.00
Cost of Feed.....				642.34
				\$ 1,850.34

Media and Preparation Room.

The increase in the volume of work in the Laboratories necessitated additional work in the Media Room. During the year, 926 batches of media were prepared. Forty-two thousand, nine hundred and eighty-six cultural plates were dispensed and distributed to the Laboratory. This amount, supplemented by the preparation of 142 lots of stain preparation necessitated the placing of additional help in this Section.

Diphtheria.

The following table (Table IV) outlines the routine work of the Central Laboratory in connection with the examination of 4,995 swabs submitted to determine the presence or absence of C. diphtheriae.

TABLE IV
DIPHtheria

	Number	POSITIVE		NEGATIVE	
		Number	Per Cent.	Number	Per Cent.
Direct Smears.....	1128	.....	.....	.....	.....
Cultures.....	4995	158	3.13	4837	96.87
Virulence Tests.....	87	15	17.24	72	82.76

Tuberculosis—Microscopic.

Twenty-three thousand, eight hundred and eighty microscopic smear preparations were prepared and examined for the presence of Tubercle Bacilli by the Division of Laboratories.

During the autumn investigations were made with a view to finding whether or not a method of treating specimens of sputum for examination for tuberculosis could be found which would be more efficient than the method hitherto in use. Four methods of concentration, namely those of T'Ang, Andrus and MacMahon, Kinyoun, and Hanks were performed on fifty sputum specimens of sanitarium patients, and the results compared with those obtained by the routine method of autoclaving and centrifugation.

The results indicated that of these methods, that of Andrus and MacMahon was the most efficient, the others having no very decided advantage over the autoclave method. Adoption of the Andrus-MacMahon technique as a routine is proposed for the coming year.

In this investigation, the hydrocarbon flotation principle, represented by the Kinyoun method, presented certain advantages. Further studies are in progress in the hope that the difficulties encountered may be overcome and that this principle may be found adaptable to the routine examination of large numbers of specimens.

Tuberculosis—Cultural.

Table V outlines the cultural results obtained in the examination of 4,841 specimens. It will be noted that 7.79% yielded positive results.

TABLE V
(October 1st, 1937 to October 1st, 1938)
TABLE OUTLINING THE RESULTS OF CULTURAL TESTS ON 4,841 SPECIMENS

TYPE OF SPECIMENS	Total Number of Specimens	Number of Positives			Number of Negatives	Percentage of Positives
		At 4 Weeks	At 8 Weeks	Total Positive		
Sputa.....	2918	149	104	253	2664	8.66
Pleural Fluids.....	348	13	11	24	324	6.92
Urines.....	628	27	15	42	586	6.56
Left Ureter.....	230	2	2	4	226	1.74
Right Ureter.....	215	1	2	3	212	1.38
Joint Fluids.....	94	2	1	3	91	3.20
Pus.....	125	16	2	18	107	14.40
Spinals.....	86	6	4	10	76	11.60
Glands.....	53	3	1	4	49	7.55
Miscellaneous.....	144	2	0	2	142	1.38
Totals.....	4841	221	142	363 14 (pigs) 377	4478	7.79

The culture media used in this routine work were identical with those used last year, with the addition of Schwabacher's medium.

Table VI outlines the results obtained in connection with the examination of pleural fluid specimens.

TABLE VI
PLEURAL FLUIDS EXAMINED
(September 30, 1937, to October 1st, 1938)

B. Tuberculosis on direct smear.....	14
B. Tuberculosis on direct smear, staphylococcus aureus.....	1
B. Tuberculosis on direct smear, haemolytic streptococcus.....	2
B. Tuberculosis on culture.....	14
B. Tuberculosis on culture, staphylococcus aureus.....	1
B. Tuberculosis on culture, B. Coli.....	1
B. Tuberculosis on culture, haemolytic streptococcus.....	1
Staphylococcus Aureus.....	31
Staphylococcus aureus, haemolytic streptococcus.....	3
Staphylococcus aureus, pneumococcus.....	2
Staphylococcus aureus, B. Coli.....	2
Staphylococcus aureus, Streptococcus viridans.....	1
Staphylococcus aureus, haemolytic streptococcus, pneumococcus.....	1
Haemolytic Streptococcus.....	14
Haemolytic Streptococcus, Non-haemolytic streptococcus.....	1
Non-haemolytic streptococcus.....	3
Non-haemolytic streptococcus, B. Coli.....	2
Streptococcus Viridans.....	3
Pneumococcus.....	54
Pneumococcus, haemolytic streptococcus.....	2
Pneumococcus, B. Coli.....	1
B. Coli 4, spore bearing bacilli 14.....	18
No growth.....	223

From the foregoing table it will be noted that the finding of organisms such as pneumococcus, staphylococcus or streptococcus, on preliminary culture does not in any way exclude the possibility of tubercle bacilli being also present.

Table VII outlines a comparative study in which the culture for the primary isolation of tubercle bacilli on 2,189 specimens was controlled by animal inoculation.

TABLE VII
2,189 SPECIMENS FROM VARIOUS SOURCES ON WHICH CULTURAL TEST WAS
CONTROLLED BY GUINEA-PIG INOCULATION
YEARS 1933-1938, INCLUSIVE

Type of Specimen	Total Number	Guinea-Pigs		Cultures	
		Negative	Positive	Negative	Positive
Urine.....	439	354	85	350	89
Right Ureter.....	497	463	34	465	32
Left Ureter.....	499	476	23	474	25
Pleural Fluid.....	3	1	2	1	2
Bone and Joint Fluid.....	245	212	33	209	36
Pus.....	118	83	35	81	37
Glands.....	61	49	12	53	8
Ascitic Fluid.....	46	43	3	44	2
Spinal Fluid.....	147	120	27	117	30
Miscellaneous.....	134	122	12	119	15
Total.....	2,189	1,923	266	1,913	276

Table VIII is an analysis of the results obtained as outlined in Table VII.

TABLE VIII
SPECIMENS FROM VARIOUS SOURCES ON WHICH EITHER CULTURE OR
GUINEA PIG WAS POSITIVE
(YEARS 1933-1938, INCLUSIVE)

Type of Specimen	Culture Positive Pig Negative	Culture Negative Pig Positive
Urine.....	7	1
Right Ureter.....	3	5
Left Ureter.....	6	4
Pleural Fluid.....	0	0
Bone and Joint.....	4	3
Pus.....	4	2
Glands.....	0	4
Ascitic Fluid.....	0	1
Spinal Fluid.....	6	3
Miscellaneous.....	4	1
Total.....	34	24

It will be noted from the foregoing table that 4 glandular specimens failed to show growth on culture media, but were found to contain tubercle bacilli by the animal inoculation.

Miscellaneous.

Twenty-two thousand, six hundred and forty-four miscellaneous bacteriological specimens were examined. Miscellaneous specimens include specimens of sputum for pneumococcus typing, joint fluids, glandular fluids, pleural fluids and specimens of sputum upon which a cultural examination is to be performed for the presence of tubercle bacilli.

Pneumococcus Typing.

(Neufeld Method)—Two thousand, four hundred and seventy-two typings for pneumococcus (Neufeld Method) were conducted by the Division of Laboratories. Type strains have been maintained by the staff of this Section. Diagnostic type serum has been prepared for each of the known types, for use both at the Central Laboratory and for distribution to our Branch Laboratories. It will be noted that at the Central Laboratory, 1,732 pneumococcus typings were conducted. In addition to this diagnostic work, the staff prepared 6,000 c.c. of diagnostic sera. The following table (Table IX) gives the incidence of the various pneumococcus types in the specimens examined from January 1st, 1938 to December 31st, 1938.

TABLE IX
INCIDENCE OF PNEUMOCOCCUS TYPES IN VARIOUS SPECIMENS
(JANUARY 1, 1938, TO DECEMBER 31, 1938)

TYPE	Sputa	Throat Swabs	Pleural Fluid	Mastoid or Ear	Spinal Fluid	Miscellaneous
1	143	9	51	9	1	5
2	62	1	1	2	....	....
3	103	4	1	5	1	2
4	27	2	1	1	1	....
5	31	1	6	2	1	....
6	39	2	2	....	2	1
7	37	....	5	....	....	....
8	40	3	1	1	....	1
9	31	....	....	....	....	....
10	13	....	....	....	....	....
11	20	2	1	....	....	....
12	11	....	....	....	1	1
13	20	1	....	....	....	....
14	11	2	....	....	....	2
15	26	....	2	....	1	1
16	24	1	1	....	....	....
17	8	1	....	....	....	1
18	31	1	....	....	....	1
19	21	5	1	....	....	2
20	15	....	....	....	....	....
21	13	....	....	1	....	....
22	28	....	1	....	....	....
23	10	3	1	1	1	2
24	6	1	....	....	....	....
25	6	1	....	....	....	....
27	5	....	....	....	....	....
28	12	....	....	....	....	....
29	22	4	....	....	....	....
31	9	....	....	....	....	....
32	2	....	....	....	....	....
Undetermined type	25	....	2	....	1	...
	851	44	77	22	10	19

In addition, a questionnaire form was forwarded to the physicians one month following the despatch of typing result. The following table (Table X) gives the data which were compiled from the replies received.

TABLE X
PNEUMOCOCCUS TYPING—SPUTA

Cases where pneumococci were isolated showing the number and percent. with pneumonia for each type.

Deaths from pneumonia in each type with case fatality.

Type	Total Number	Cases of Pneumonia	Percent. of Total	Deaths	Case Fatality	Type	Total Number	Cases of Pneumonia	Percent. of Total	Deaths	Case Fatality
I	125	124	99.2	13	10.5	XVIII	20	16	80.	1	9.
II	42	42	100.	4	9.5	XIX	24	21	87.5	...	.....
III	114	101	88.6	19	18.8	XX	24	18	75.	3	16.6
IV	38	32	84.2	4	12.5	XXI	7	5	71.4	...	.....
V	39	39	100.	6	15.4	XXII	26	23	88.5	7	30.4
VI	50	35	70.	4	11.4	XXIII	15	9	60.	1	11.1
VII	38	33	86.8	4	12.1	XXIV	12	11	91.6	...	.....
VIII	59	48	81.3	2	4.1	XXV	5	4	80.	...	.....
IX	19	12	63.1	4	33.3	XXVII	9	7	77.7	...	.....
X	17	12	70.6	...	.....	XXVIII	18	14	77.7	3	21.4
XI	8	7	87.5	...	.....	XXIX	25	18	72.	3	16.6
XII	18	15	83.3	...	.....	XXXI	14	10	71.4	2	20.
XIII	14	10	71.4	1	10.	XXXII	3	1	33.3	....	.....
XIV	11	9	81.8	...	.....	Undeter-	46	38	82.6	2	5.3
XV	20	15	75.	...	.....	mined					
XVI	23	17	73.9	2	11.8	Total	900	757	80.4	86	8.8
XVII	17	11	64.7	1	9.						

These results were obtained from questionnaires submitted to physicians for whom the typings were performed.

Bacteriological Water Examinations.

Thirty thousand, four hundred and thirty-one bacteriological water examinations were conducted by the Division of Laboratories. The technique approved by the American Public Health Association was adhered to in connection with the examination of these specimens.

Milk.

Twenty-four thousand, six hundred and seventeen milk samples were examined for bacterial content. As a routine, the total plate count is supplemented by the B. Coli count. When requested by the Medical Officer of Health, further examinations are made for the presence of hemolytic streptococci, determination of chlorides, rennet coagulation, etc.

A study was conducted as to the value of the phosphatase test as an index to determine the efficacy of pasteurization. Phosphatase is an enzyme present in various body fluids. It is present, in fairly large amounts, in milk. Under suitable conditions, it has the property of hydrolysing organic phosphoric esters to inorganic phosphates. It is almost completely destroyed by the usual pasteurization procedures. In doing the test, disodium phenyl phosphate of controlled hydrogen ion concentration is subjected to the action of the milk for a definite time at incubation temperature. Phenol is liberated in varying amounts, depending on the amount of the enzyme present. The presence and relative amount of phenol is determined by means of Folin and Ciocalteu's reagent. The presence of phenol produces a blue colour with this reagent and records are made in terms of blue units on the tintometer scale.

In our Laboratory, a number of samples of raw milk were pasteurized at various temperatures for 30 minutes. Further samples were pasteurized at 143° F. for various times. Phosphatase tests were carried out on these. A number of commercially pasteurized samples were also examined. The phosphatase test used closely follows the method of Kay and Graham.

Colon Typhoid.

The work in this sub-section of our Laboratory is gradually becoming more complicated. The Laboratory has undertaken the identification of typhoid strains isolated as suggested by Craigie. In addition to this, stock strains for the additional members of the para B. group of organisms have been obtained for which serum will be prepared. The Central Laboratory is in a position to identify any of the known members of the Salmonella group of organisms. The routine agglutination test conducted in the Central Laboratory includes each serum being tested with the following antigens:

- S. typhi H
- S. typhi O
- S. paratyphi B group
- S. paratyphi B type
- S. para A.

In addition to this routine test for members of the Salmonella group, the serum is also tested against Brucella abortus, H. tularense and B. proteus X19.

The value of using type and group antigens is demonstrated in the following Table.

TABLE XI

Laboratory Results	No. Positive
Type-Phase.....+ } Group-Phase.....+ }	59
Type-Phase.....+ } Group-Phase.....— }	58
Group-Phase.....+ } Type-Phase.....— }	5
Culture only..... +	5
Total.....	127

It will be noted from the above table that had care not been exercised to ensure that the bacterial suspension used in the antigen preparation was in the type phase, 58 cases of para B infection would have passed unnoticed, or, in other words, a negative laboratory report would have been despatched.

Table XII outlines the agglutination test results for the years 1933 to 1938, inclusive.

TABLE XII
ANALYSIS OF WHOLE BLOOD EXAMINATIONS MADE FROM THE YEAR
1933 TO 1938 INCLUSIVE

Year	Number Examined	B. Typhosus		Para B.		Br. Abortus	
		Number Positive	Per Cent. Positive	Number Positive	Per Cent. Positive	Number Positive	Per Cent. Positive
1933	2,227	129	5.8	60	2.7	67	3.0
1934	2,155	218	10.1	66	3.0	80	3.7
1935	2,195	360	16.4	66	3.0	84	3.8
1936	2,035	196	9.1	72	3.5	73	3.6
1937	2,629	282	10.7	110	4.2	69	2.2
1938	2,878	321	11.11	73	2.53	104	3.64

In addition to the results outlined in the above mentioned Table, 4 specimens yielded positive results in the agglutination test for S. paratyphi A. and 3 for H. tularense.

Table XIII outlines the blood cultures examined during the year 1938.

TABLE XIII
BLOOD CULTURES EXAMINED DURING 1938

1938	Number Examined	Number Positive	Per Cent. Positive
S. Typhi.....	2878	45	1.563
S. Paratyphi B.....	2878	13	.455
Haemolytic Streptococcus.....	2878	25	.865
Streptococcus Viridans.....	2878	36	1.250
Haemolytic Staphylococcus Aureus.....	2878	42	1.459
Pneumococcus Type 1.....	2878	1	0.347
Totals.....	2878	162	5.939

Table XIV outlines the results of the examinations on 1,943 specimens of stool and urine.

TABLE XIV
STOOL AND URINE EXAMINATIONS—1938

Organisms Isolated	Number Positive	Per Cent. Positive
Salmonella Typhi.....	100	5.146
Salmonella Paratyphi B.....	52	2.680
Shigella Paradysenteriae Flexner.....	34	1.753
Shigella Paradysenteriae Sonne.....	28	1.441
Salmonella Typhi Murium.....	1	0.051
Salmonella Columbensis.....	8	0.411
Salmonella Morganni.....	17	0.874
Haemolytic Staphylococcus Aureus.....	1	0.051
Haemolytic Staphylococcus.....	9	0.463
Streptococcus Viridans.....	9	0.463
Total Number Positive.....	259	
Total Number Negative.....	1684	
Total Number Examined.....	1943	

Investigational work in connection with enrichment fluid used in the outfit distributed by the Division has been conducted. This outfit now contains two vials, one of which contains a mixture of buffer saline and glycerine 20% and the other, buffer saline. A study as to the value of tetrathionate broth is under way. The cultural plates used in connection with the bacteriological examination of stools are the eosin methylene blue and the McConkey's bile salt agar. This latter medium contains sodium chloride and has been found an excellent medium for the isolation of dysentery organisms. We have continued the use of Endo medium, as in years past. Bismuth sulfite medium is being used for the isolation of *S. typhi*.

Syphilis (Serodiagnosis).

The routine instituted in 1937 has been followed during the past year, namely, that of subjecting all specimens received to a Standard Kahn and Hinton flocculation. Where the results are in complete agreement, the report is forwarded. Should the results not be in agreement, the report is held and the specimen subjected to the Kolmer Wassermann technique. In special instances, a Presumptive Kahn and Kline slide test are also conducted.

The antigens are prepared at the Central Laboratory and distributed to the Branches. A small supply of antigen is obtained from the author of each test in order that each batch of antigen prepared at the Central Laboratory may be identical with that of the author.

Special emphasis is being placed on the desirability of quantitative tests in connection with the examination of blood serum from cases undergoing treatment. The qualitative test distinguishes between positive, doubtful and negative reactions, whilst the quantitative test in addition provides a measure of the degree of positivity.

Spinal Fluids.

In connection with the spinal fluid examinations, a Kolmer Wassermann is conducted, as well as colloidal gold and total protein determination. The Wassermann test is in our opinion more satisfactory in the testing of spinal fluid specimens. We have discontinued reporting globulin tests in view of the fact that a total protein determination is a routine procedure and is conducted on all spinal fluid specimens which are free from blood and not discolored.

Darkground Examination.

The following table outlines the number of specimens received at the Central Laboratory during the years 1937 and 1938.

TABLE XV

Number of Dark Fields	Number Where Days are Given	Average Number Days from Date of Exposure	Average Number Days from Date of Appearance of Primary Sore
215 (1937)	60 or 27.9%	40 days	13 days
178 (1938)	54 or 30.3%	34 days	10 days

Table XVI outlines the serological results obtained in connection with the examination of peripheral blood specimens submitted in the dark field outfit. The greater sensitivity of the Presumptive Kahn and Hinton flocculation tests will be noted. These tests demonstrate that they are of value when used as exclusion tests for early diagnosis.

TABLE XVI

Number of Examinations	+ Dark Field	+ Dark Field and Serology	Presumptive Kahn Positive and Doubtful	Standard Kahn Positive and Doubtful	Wassermann Positive and Doubtful	Hinton Positive and Doubtful	Kline Positive and Doubtful
178	47.71						
150		12.63					
153			26.79				
153				22.87			
121					28.09		
150						26.66	
115							26.95

I wish to express my hearty appreciation to all members of the Central Laboratory staff, the Directors and staff of the Branch Laboratories, and to thank Dr. A. J. Slack, Director of the Institute of Public Health, London, for the hearty co-operation given me. I also wish to thank Professor James Miller, Richardson Laboratory, Kingston, for the assistance he has given our Division, serving as Departmental Consultant in Pathology. In conclusion, may I extend my appreciation to Dr. W. B. McClure, Dr. A. E. Allin, their Assistants and Mr. F. J. Murphy of the Central Laboratory staff, for the efficient service rendered in connection with pneumococcus typing.

PATHOLOGY

H. A. ANSLEY, M.B., D.P.H., *Pathologist.*

History.

The pathology section of the Central Laboratory was started in 1930, under the directorship of the late Dr. Edgar Bates, to provide tissue diagnostic service to institutions and physicians requiring this service. For the past eight years the work of this section has increased at the rate of 1500 specimens annually, the increase for 1938 being 1650. From 1930 to 1937 the section was housed in the basement of the Banting Institute, but in July, 1937, was moved to the fourth floor of the East Block Parliament Buildings, where it is at present located.

Personnel.

From January to October of 1938 the section was under the directorship of Dr. H. A. Ansley, and from October to December under Dr. S. F. Penny. Dr. Ansley was assisted from October, 1937, to April, 1938, by Dr. J. Bell, Director of Branch Laboratory, Fort William, and Dr. M. R. Shaver, graduate medical practitioner. Dr. W. M. Wilson, Director of Branch Laboratory, North Bay, also received instruction two weeks before proceeding to the Autopsy service at the Banting Institute. Dr. Morley Whillans acted as assistant pathologist for the months of April, May and June, receiving instruction in surgical and autopsy diagnosis. Mr. D. Wilson, undergraduate medical student, acted as assistant from July until the third week of August. In September, Dr. Doris Howell, graduate medical practitioner became assistant, her training in diagnosis continuing until the end of the year. In October, Dr. Ansley was transferred part-time to the Division of Communicable Diseases and Dr. S. F. Penny took over the direction of the Section, assisted by Dr. Howell.

With regard to the technical staff, no changes were made in 1938 with the exception of Miss McIntyre who took technical training in the Section from December 1st, 1937, until April 1st, 1938, at which time she was replaced by Miss R. Smith.

Equipment.

Owing to the increase in surgical and autopsy material two permanent slide files were purchased, as well as an extra Rotary-Paraffin-Section machine. The frozen-section rapid diagnostic service begun in 1937 was continued and expanded in 1938, over one-third of the specimens being handled in this way.

Diagnostic Services.

The work of the section consists of preparation by paraffin and frozen-section methods, of surgical and autopsy tissue for diagnosis. In 1930 a total number of 650 specimens were examined, in 1938, the total was 8658, 8514 of this total were surgical specimens and 146 autopsies. These specimens were received from 220 communities all over the Province as well as some from Noranda, Que., and St. Johns, Newfoundland. The section provides routine surgical tissue diagnosis as an adjunct to operating services for 156 hospitals, which represents an increase of 50 hospitals for 1938. A large majority of these hospitals are not equipped for local tissue diagnosis. A twenty-four hour service is given for surgical reports. This is especially valuable in the diagnosis of cancer by biopsy. The report in these cases is often wired or telephoned. In thirty-four cases of suspected cancer the result was wired within a few hours after receipt of the specimen. In twenty-five cases, largely from the Northern section of the Province, a duplicate report was sent to the Radiological Department of a tumour clinic. Several duplicate reports were sent with patients to the Mayo Clinic; the diagnosis was confirmed in each case. Of the surgical tissues about 10% were cancerous during the year 1938. Of the total 2,326 tumours received during the year, 768, or 33%, proved to be malignant. The autopsy service, which has increased from 9 autopsies in 1930, to 146 in 1938, consists of a few autopsies done by the Director of the section and his assistants; but to a large extent, consists of the examination of autopsy tissues sent in from hospitals or by physicians, tissues often being from medico-legal cases. In a few instances, the Department of Health has authorized the staff of the section to assist coroners by travelling to outlying areas to conduct medico-legal autopsies.

With regard to the autopsy service of the Mental Hospitals, owing to lack of sufficient staff, nothing further has been accomplished in the provision of a routine autopsy service by the Pathology Section. Except in cases where an autopsy is ordered by the Coroner, the Central Staff conducts the autopsy. Sections of all tissues except brain are prepared and a diagnosis made. The brain is sent to Dr. Linell, Prof. of Neuropathology, who has been Acting Neuropathologist to the Department of Health during the past year.

Demonstrations and Papers.

During 1938 several demonstrations of methods, for section of tissues in use in the Pathology Section were given to various groups, including the Field Course of the School of Hygiene; to the Health Officers of the Province at their annual meeting; and at Christmas meeting of the Laboratory Section of the Canadian Public Health Association. Demonstrations of the Frozen Section Technique by Miss I. Stephen, senior technician, were given at the School of Hygiene.

A paper on the same subject was published in the first issue of the Technical Bulletin of the newly-formed Canadian Society of Technologists by Dr. H. A. Ansley and Miss Stephen.

Advisory Board of Pathology.

This Board, with Dr. Deadman as Chairman and Dr. Ansley as Secretary, was formed December, 1937. A preliminary list of Approved Pathologists, to which was later added the following names: — Dr. L. C. Fisher, of Kitchener, and Dr. G. T. Zumstein, of St. Catharines; was forwarded to the Deputy Minister, who then advised the Public Hospitals of the pathologists who were approved and available. As a result of the previous meeting of the pathologists sponsored by the Department of Health, The Ontario Association of Pathologists was organized in December, 1938, with Major G. Shanks as president, and Dr. H. A. Ansley as secretary-treasurer. A preliminary constitution was drawn up and 22 members paid the annual dues of one dollar (\$1.00) to join the Association. It is planned that in the future the Executive Council of this Association will take over the duties of the Advisory Board in Pathology.

We wish to express our appreciation to Dr. James Miller of Kingston, Consultant Pathologist for the Department and to Dr. W. L. Robinson, Pathologist to the General Hospital, Toronto, for their valuable assistance in a consulting capacity.

TUMOURS 1939

	MALIGNANT				BENIGN			
	Male	Female	Unstated	Total	Male	Female	Unstated	Total
Adrenal.....	1	.....	.....	1	.....	.....	....	.....
Appendix.....	3	3	.....	6	.....	.....	.....	.....
Blood.....		1	.....	1	.....	.....	.....	.....
Brain and Nerves.....	1	.....	.....	1	10	2	2	14
Bladder-urinary.....	5	1	.....	6	4	.....	.....	4
Breast.....	1	125	.....	126	4	87	.....	91
Bones.....	4(2)	5(1)	.....	12	11	16	2	29
Eye.....	3	2	.....	5	.....	2	.....	2
Endometriosis.....		.....	.....	.....	.....	39	.....	39
Fluids.....	5	10	1	16	.....	.....	1	1
Glands.....	13(16)	8(45)	1(1)	84	.....	.....	.....	.....
Salivary.....	(1)	.....	1	2	10	5	.....	15
Intestine—Small.....	5	4	.....	9	.....	1	.....	1
Large.....	6	11(1)	.....	18	1	.....	.....	1
Kidney and Ureter.....	2	1	.....	4	.....	.....	.....	.....
Liver and Gall-Bladder.....	2(1)	1(2)	.....	6	1	1	.....	2
Mouth—Tongue—Lip.....	44	5	1	49	40	30	4	74
Nose and Throat.....	4	2	.....	6	10	6	2	18
Ovary and Fallopian Tube.....		31(5)	.....	36	.....	83	.....	83
Pancreas.....	1	.....	.....	1	1	.....	.....	1
Peritoneum and Omentum.....	(1)	1(23)	.....	25	1	1	.....	2
Prostate	19	.....	.....	19	8	.....	.....	8
Rectum and Anus.....	17	13	1	31	17	16	1	34
Skin.....	93(1)	53(3)	12	162	122	127	10	259
Subcutaneous Tissue Tendon and Muscle.....	5(4)	6(1)	3	19	90	110	6	206
Stomach and Oesophagus	4	5	1	10	.....	.....	.....	.....
Testis and Epididymis.....	7	.....	.....	7	2	.....	.....	2
Thyroid.....	2	2(1)	.....	5	36	150	1	187
Urethra.....		1(1)	.....	2	.....	5	.....	5
Uterus—Body.....		36(1)	.....	37	.....	332	1	333
Cervix.....		57	.....	57	.....	134	1	135
Vagina.....		4(1)	.....	5	.....	12	.....	12
TOTAL.....	273	473	22	768	368	1159	31	1558
Percent.....	(36%)	(62%)	(2%)		(24%)	(74%)	(2%)	

Of the total tumours 33% are malignant.
() Secondary tumours.

AUTOPSY CASES FOR 1938

Autopsy Cases.....	80
Workman's Compensation Board.....	8
Animal.....	28
Coroners—(Material received, 15; Autopsies performed by Central Staff, 2).....	17
Mental Hospitals—(Material received, 5; Autopsies performed by Central Staff, 3).....	13
Total Autopsies.....	146

YEAR	Number of Surgicals	Number of Autopsies	Total Specimens	Number of Tumours	Benign Tumours		Malignant Tumours	
					Total Benign	Percent	Total Malignant	Percent
1930	599	9	609	.....	.....	.....	.....	....
1931	2625	46	2671	1065	496	46	569	54
1932	3083	30	3113	931	491	53	440	47
1933	3652	23	3675	1054	659	63	395	37
1934	4683	33	4716	1270	707	55	563	45
1935	5553	44	5597	1497	913	63	584	37
1936	5919	48	5967	1536	941	61	595	39
1937	6917	87	7004	1675	1106	66	569	34
1938	8512	146	8658	2326	1558	67	768	33

REPORT ENDING 1938

Number of communities served (1937) 134, (1938).....	220
Number of Hospitals served.....	156
Number of Physicians and Surgeons.....	3000
Number of Frozen Sections.....	2936

FORT WILLIAM BRANCH LABORATORY

A. E. ALLIN, M.D., D.P.H., *Director.*

I beg to submit the Annual Report of Laboratory Examinations made during the year 1938 by the Branch Laboratory of the Department in Fort William.

A total of 39,658 examinations were made, an increase of 9,645 or 32.1% over 1937. These examinations were distributed as shown in the table below.

SPECIMENS EXAMINED, FORT WILLIAM LABORATORY
1937-1938

Examination	1937	1938	Increase	Per Cent. Increase
Diphtheria Cultures.....	411	670	259	63
Diphtheria, Direct Smears.....	365	524	159	43.6
Diphtheria, Further Reports.....	61	404	343	562
Diphtheria Virulence Tests.....	3	4	1	33.3
Tuberculosis Smears.....	1359	1854	495	36.5
Tuberculosis Cultures.....	16	688	672	4200
Tuberculosis Guinea Pigs Inoculated.....	9	22	13	144.4
Agglutinations.....	1296	2397	1101	85
Faeces Examinations.....	119	512	393	330
Blood Cultures.....	207	455	248	120
Gonorrhoea Smears.....	2635	3283	648	24.7
Spinal Fluid Tests.....	271	632	361	133.2
Miscellaneous Bacteriology.....	638	1784	1146	179
Pneumococcus Typings.....	75	341	266	355
Milk-Bacteriological.....	3149	3568	419	13
Water-Bacteriological.....	3138	3756	618	20
Dark Fields.....	40	64	24	60
Serological Tests.....	14,678	16,538	1860	13
Blood Sugars.....	271	439	168	62
Blood Ureas.....	79	169	90	114
Butter Fats and Miscellaneous Chemical.....	1193	1230	37	3
Beverage Room Utensils.....	0	324	324	.....

The increase in the volume of work done in this laboratory was even greater than in previous years. As can be seen from the above table, it was generally distributed throughout all sections of the work. This may be attributed to the increasing population of the territory served by the laboratory, and additional physicians using the facilities offered. A few explanations are necessary to account for the large numbers of certain examinations performed.

(a) Despite the few cases of Diphtheria, the number of throat swabs submitted has rapidly increased. In the majority of instances, a Streptococcal infection is suspected, and confirmation is desired before treatment with Sulphanilamide is inaugurated.

(b) Cultural examination for the primary isolation of the tubercle bacillus was begun in December, 1937. This met with a favourable reception. Approximately 4% of the specimens examined proved to be positive.

(c) Two small outbreaks of Typhoid Fever, a few isolated cases of this disease, and a relatively large number of cases of Sonne Dysentery account for the increase in the number of Blood Cultures, Feces Examinations, and Agglutination Tests performed.

(d) This area suffered an epidemic of Type I Pneumonia during the winter of 1937-1938. The Laboratory typing service was largely used by the physicians; 341 specimens were submitted for typing. Type I serum was used with excellent results, the death rate of those treated being 12% compared with 30% in the untreated. Patients suffering with Type 3 Pneumococcus were treated with Sulphanilamide with 100% recovery.

During 1938, 24,277 outfits were prepared and 22,306 distributed, in comparison with 18,802 and 18,833, respectively, during 1937.

Only the co-operation of every member of the staff enabled the laboratory to carry out such a large volume of work. I express my thanks to them for their loyal assistance, and to Dr. A. L. MacNabb, Director of Laboratories, for his unfailing co-operation during the past year.

RICHARDSON LABORATORY, QUEEN'S UNIVERSITY,
KINGSTON.

PROFESSOR JAMES MILLER, M.D., D.Sc., F.R.C.P. (E.), F.R.C.P. (Can.),
F.R.S.C., *Director*.

Herewith, the statistics of the work carried out in the Kingston Branch Laboratory during the past year. It will be noted that the work done, as indicated by the number of reports issued, shows rather more than the usual increase, 27,943 as compared with 22,034 in 1937. Small increases are to be observed in most of the items. There is a considerable rise in the number of sputums examined for tubercle, in the number of gonorrhoea smears and in the serological tests for syphilis. On the other hand there is a diminution in the number of throat swabs for diphtheria and in the milk examinations.

A notable addition to the work of the laboratory is the typing of pneumococci in samples of sputum from cases of pneumonia. In 1937, 28 of these examinations were done, in 1938, 77. These numbers, however, do not indicate the amount of time spent by the members of the staff upon these examinations. The process is becoming more complicated and time-consuming as well as increasing in volume month by month and year by year.

During last year the examination of the water supplies of Kingston Municipality, of the Penitentiary and of the Royal Military College have been carried out in the Department of Preventive Medicine of Queen's University under the superintendence of Professor Wyllie. The co-operation between the two laboratories in this matter has been harmonious and entirely satisfactory.

The number of outfits prepared and distributed has also increased materially 14,873 in 1937, and 17,049 in 1938.

I should like to express my gratitude to you, Sir, to the Minister of Health, and to Dr. MacNabb for your co-operation and for your willingness to supply us with material of all kinds and with advice.

INSTITUTE OF PUBLIC HEALTH, LONDON.

A. J. SLACK, Ph.C., M.D., D.P.H., *Director*.

I have the honour to submit herewith the Annual Report of laboratory examinations made during the year 1938 by the Branch Laboratory of the Department located in the Institute of Public Health, London.

Laboratory examinations made during the year numbered 95,733 as compared with 87,794 for the preceding year, showing an increase of 7,939 examinations or 9.0% in routine laboratory work.

A steady growth is shown in almost all lines of work with the most marked increase occurring in the more recent types of free examinations such as the Neufeld typing of pneumococci, the B. coli count in milk and the examination of wash and rinse water and eating and drinking utensils from restaurants and beverage rooms.

For many years our routine tests for syphilis have included the Kolmer Wassermann reaction and the Standard Kahn test. During this year the Hinton and Standard Kahn tests were adopted as routine with the Wassermann Presumptive Kahn, Quantitative Khan and Kline serving as confirmatory tests, conforming with the routine carried on by the Central Laboratory.

The only significant decrease in laboratory examinations will be found in Spinal fluids and in the bacteriological examination of water from private wells. This was to be expected because the epidemic of polio-myelitis and the occurrence of flood-conditions in Western Ontario during the previous year resulted in an abnormal demand for these examinations.

During the year 51,671 outfits for the collection of specimens were distributed from this laboratory representing an increase of 12 per cent. over 1937, while 17,827 outfits were reclaimed and prepared for redistribution which is an increase of 88 per cent. This laboratory also distributed 29,805 packages of free insulin and free biological products during the year.

I wish again to express my appreciation to the Institute staff and to Dr. A. L. MacNabb, Director of Laboratories, whose hearty co-operation have made possible the completion of another highly successful year.

OTTAWA BRANCH LABORATORY

F. L. LETTS, M.B., D.P.H., *Director*

I have the honour to submit herewith a summary of the type and number of specimens examined at this Branch Laboratory during 1938, the total number being 67,945, an increase of 8,190 over 1938.

The low incidence of diphtheria and of the enteric diseases has allowed time for more detailed work on other types of specimens.

At the first of the year Mr. John Baron began routine cultures on all sputums negative for T. B. by direct smear, but pressure of other work curtailed this plan. Eight hundred and seventy-six cultures were made, using four different culture media for each. Of the 850 completed, that is, incubated for eight weeks, 58 sputums negative on direct smear were positive in culture.

Mr. Baron also cultured 50 samples of milk for the A.P.H.A. Committee on Standard Methods for the Examination of Dairy Products. This work

involved the use of three different agar media: Standard; Modified T-G-M; and AAMMC, and two incubation temperatures: 32°C and 37°C.

B. Coli counts of milk are proving to be efficient checks on the cleaning and sterilizing of dairy equipment. Line inspection of a dairy plant usually locates any faulty apparatus or technique.

Specimens of blood and spinal fluid for serological test continue to increase in number, being routine in prenatal and other clinics.

PETERBOROUGH BRANCH LABORATORY

C. B. WAITE, M.D., *Director*

I have the honour to submit my report for the Branch Laboratory, Peterborough, for the year 1938, as follows:

The total number of specimens for the year shows an increase of 249 over the previous year.

Examination of swabs for diagnosis of diphtheria continues to decrease and positive findings are rare.

Examinations for tuberculosis show an increase, probably due to the activities of the Central and Local Departments of Health endeavouring to control this disease.

There were a few sporadic cases of typhoid in the district but no epidemics, large or small, and there was a notable decrease in agglutination tests and faeces examinations. Blood cultures also showed a decrease.

There was an increase in the examination of milk specimens and water specimens. Tissue examinations also showed a small increase.

I wish to thank the Director for his co-operation and assistance during the year.

SAULT STE. MARIE BRANCH LABORATORY

N. F. W. GRAHAM, B.A., M.D., *Director*

I beg to submit the statistics of the work done in the Sault Ste. Marie Branch Laboratory for the year 1938. The volume of work done shows a considerable increase over the previous year. The specimens examined this year total 14,080 as compared to 12,225 for 1937.

The increase this year is fairly distributed over the various items submitted. A noticeable increase is seen in the number of milk samples received. This might be attributed to the greater activity of the local sanitary inspector. An increase has also been noticed in the samples received from the district since compulsory pasteurization came into effect in October. An increase is also seen in the Chemistry of the City water due to a change in the disinfection of the City water supply when Chloramine was instituted.

Throughout the year a considerable number of Streptococcus infections has been seen. There has been no diphtheria and only one case of Infantile Paralysis. I would like to record my appreciation of the excellent co-operation I have received from the Deputy Minister, Dr. McGhie, and Dr. A. L. MacNabb, Director of Laboratories.

NORTH BAY BRANCH LABORATORY

A. D. McCLURE, B.A., *Director.*

I have the honour to submit for your approval the report on the work done in the North Bay Laboratory during the year 1938.

The number of examinations shows an increase of 7,751 over the previous year. This is an increase of 28%.

An examination of the figures does not show that this increase is due to any particular branch of the work but that it is a general increase in the number of all types of specimens received.

The introduction of *B. coli* counts and the Phosphatase test as indices of pasteurization and care in the handling of milk we hope will be a valuable aid to those responsible for the inspection of pasteurization plants in this district.

In the early part of the year the Kolmer Wassermann test was discontinued and the Hinton flocculation test was substituted for it. Our general observation would be that we have a very close correlation between the Hinton and the Kahn test. The Hinton test appears to be slightly more sensitive in treated cases.

The increase in the amount of work mentioned above resulted in a very heavy burden of overtime work for the staff. The transfer of Miss Evelyn Tuft from the Central Laboratory to this Laboratory has been a very valuable change from our standpoint. Miss Tuft's wide training at the Central Laboratory has enabled her to give valuable assistance in almost all branches of the work here. With the present volume of work the staff is now able to carry on the ordinary routine without a great deal of overtime work.

I wish to express thanks for myself and on behalf of the staff to Doctor MacNabb and the staff of the Central Laboratory for their co-operation in aiding us in the examination of specimens which have been a little out of our ordinary routine, for aid in verifying our findings where results have been open to doubt, and for the general promptness with which we have received our shipments of supplies.

DIVISION OF SANITARY ENGINEERING

A. E. BERRY, M.A.Sc., C.E., Ph.D., *Director*

The report of the activities of the Division of Sanitary Engineering for the year 1938 must record some conspicuous advances. Important legislation for health protection was passed; greater expenditures have been made on municipal sanitary works; interest has increased in the operation of plants, and in efforts to further the knowledge of that sanitary science which leads to an economical and effective solution of troublesome problems, all of which make for safer and better living conditions. For the first time in many years the estimated cost of sanitary systems approved by the Department has shown an increase. This upward trend has occurred in both the water works and sewerage. The weather during the summer, a factor of some considerable importance in the work of the Division was not such as to aggravate unduly those conditions which tend to give rise to complaints. Requests for assistance have continued to be numerous, and have come chiefly from health officers and from municipalities where technical advice was needed.

Water Works Programmes.

Renewed interest in programmes of extensions of water works systems is indicated by an increased expenditure for the year. 88 certificates of approval were issued for a total value of \$583,220.23, an increase of \$297,878.91 over the previous year. A comparison with the figures for the last ten years is shown herewith.

Year	Waterworks Expenditures Approved
1929.....	\$2,986,634 99
1930.....	6,245,237 60
1931.....	5,856,781 41
1932.....	1,627,173 71
1933.....	1,041,937 77
1934.....	817,838 63
1935.....	790,800 75
1936.....	683,600 04
1937.....	285,341 32
1938.....	583,220 23

While this expenditure is as yet considerably lower than might be hoped for it is encouraging to observe a returning interest in water works services. The work involved has been spread over a number of municipalities rather than being concentrated in a few of the larger places.

New Water Works Systems.

Adverse financial conditions have delayed the initiation of new water works systems. All larger communities are now serviced with public supplies, but those with populations less than 800 have found difficulty in securing sufficient public opinion to undertake the capital costs. In Northern Ontario new townsites have developed rapidly and the need for water systems in these places has become urgent. At Geraldton a distribution system has been completed, with a water supply from a lake in that vicinity. The recently incorporated town of Larder Lake made a start on a public system, but was delayed through inclement weather. This will be completed in 1939. The Village of West Lorne in Southern Ontario has arranged to build a system, and some contracts were

let towards the end of the year. Water will be obtained from Lake Erie, and a filtration plant will be included in the system.

Water Treatment.

No new filtration plants have been constructed during the year. The duplicate plant of 100 m.g.d. capacity for the City of Toronto is nearing completion and should be in operation in 1939. Certain improvements have been made in water treatment which will aid materially in operating technique. At Port Hope a reservoir and pumping station have been added. Scarborough Township has increased the capacity of the supply works by constructing additional clear water storage. Woodstock has made a similar improvement. At North York conditions have been improved materially by putting into service an auxiliary underground water supply, treated by a water softening and iron removal zeolite plant. This is the third municipal softening plant to be operated in the province.

There are now 60 municipal filtration plants operating in the province. The details of these are listed in Table No. 1.

The sand in the filters at New Toronto has been replaced with "anthrafilt," and the operating results appear to be quite favorable.

Water Chlorination,

Chlorination continues to serve a very necessary function in water treatment. Two hundred municipal or public supplies now receive this protection, and over 80% of the total water consumption is chlorinated. Liquid chlorination is the almost universal choice but some of the smaller supplies are treated by hypochlorite feeders, with equally satisfactory results. The necessity for continuous protection of the supplies by chlorination or other means must be emphasized in spite of the fact that no municipal supplies have been responsible for water borne diseases during the year.

Supervision of Water Plants.

The regular supervision of water supplies by engineers of the Department has been continued. The staff has been allotted specific districts to cover. These are as follows:

TABLE I

District No.	Engineer in Charge.	Areas (by Counties and Districts)
1	E. W. Johnston	Essex, Kent, Lambton, Middlesex, Elgin, Oxford.
2	A. T. Byram.....	Waterloo, Wellington, Grey, Dufferin, Simcoe, Muskoka, York (West of Yonge Street).
3	G. M. Galimbert	Peel, Halton, Wentworth, Lincoln, Welland, Haldimand, Brant, Norfolk.
4	O. V. Ball.....	Ontario, Victoria, Durham, Northumberland, Peterborough, Haliburton, Hastings, Prince Edward, and the City of Toronto.
5	G. A. H. Burn....	Carleton, Grenville, Dundas, Russell, Prescott, Stormont, Glengarry.
6	W. R. Edmonds..	Temiskaming, Sudbury, Nipissing, Parry Sound, Bruce, Huron, Perth.
7	H. G. Tyler.....	Leeds, Renfrew, Lanark, Frontenac, Lennox, Addington, York (East of Yonge Street).
8	L. A. Kay.....	Kenora, Rainy River, Patricia, Thunder Bay, Algoma, Manitoulin.

The work of supervising water treatment plants has been carried on in conjunction with other field activities, thereby combining the work as much as possible. Particular attention has been paid to ensuring the safety of water supplies. Operators are changed from time to time in these plants, and sufficient care is not always used with respect to the qualifications of those replacing men who have been on the work previously. The need for well qualified plant operators is evident for water plants as well as for sewage works, dairies and other activities in which public health protection is a factor. In all cases there is an attempt to provide a good margin of safety, but since all processes must rely to some extent on the efficiency of the operator his training and qualifications are important.

The safety of the public water supplies of the province has had an influence on the typhoid rates in recent years. These are as follows:

TABLE II
TYPHOID FEVER

Year	No. of Cases	Deaths	Death Rate per 100,000 Population
1919	492	145	5.0
1920	713	203	7.0
1921	725	213	7.2
1922	576	179	6.0
1923	1663	238	7.9
1924	833	109	3.5
1925	859	137	4.4
1926	581	77	2.4
1927	967	109	3.4
1928	715	78	2.4
1929	738	97	2.9
1930	630	71	2.1
1931	756	97	2.7
1932	451	58	1.7
1933	477	47	1.3
1934	547	45	1.2
1935	310	41	1.1
1936	251	39	1.0
1937	241	27	0.7
1938	235	34	0.9

Sewerage Systems.

The downward trend in sewerage expenditures has been halted, and the total estimated costs of projects approved by the Department, totalling \$1,083,331.57, approaches the figure for 1935. While this is very much lower than for the years 1929-34 it is interesting to note that more work is being undertaken, the result of which should be better living conditions for urban centres.

The estimated expenditures for sewerage projects approved by the Department over the last 10 years are given herewith, for comparison with the trend in water works programmes.

Year	Sewerage Expenditures Approved
1929.....	\$5,974,445 82
1930.....	9,710,773 05
1931.....	4,924,151 59
1932.....	4,698,959 47
1933.....	2,605,960 48
1934.....	1,616,808 08
1935.....	1,104,291 57
1936.....	875,868 32
1937.....	769,026 21
1938.....	1,083,331 57

These expenditures for the year 1938 have been scattered over a number of municipalities, but the total centres doing work of this kind have been relatively small.

One of the large expenditures approved was for the Township of Etobicoke, where a new sewerage system was installed. The sewage will be treated in a plant now operated jointly by New Toronto and Mimico. This tends to keep the treatment for that area confined to one large plant rather than a number of smaller ones. The City of Ottawa was second highest in expenditures. Here the sewerage system has been undergoing some major changes to prevent flooding, and to improve the efficiency in general.

Sewage Treatment.

Changes in the sewage disposal plants of the province have been few. At Kitchener provision was made for the treatment of the sewage at the Doon plant by chemicals during the low flow of the river in the summer. Fortunately the rainfall in 1938 was sufficient to not require this aid. At Scarborough Township a horizontal type vacuum filter was put into operation and has given effective service on undigested activated sludge. The Township of Tisdale has increased the settling capacity of their treatment tanks. York Township has increased its capacity for sludge filtration.

There are now in operation in Ontario 129 sewerage systems for urban communities. The total number of treatment plants is 75. These are classified in Table No. 3.

The methods of sludge disposal are given in Table No. 4.

Developments in Sewage Treatment.

Sewage disposal has been making rapid progress in recent years in the United States where Federal Aid has been made available to municipalities. This has resulted in the construction of a large number of important treatment works, and in these are to be seen noteworthy developments in the methods which have become recognized. Since the conditions and practices followed in Canada are somewhat similar to those in the United States this progress is watched with interest. Plants to be built in this country in the near future will take advantage of these newer procedures.

Trends in sewage treatment continue to point to further mechanization of the process. The activated sludge system has fortified its position where a complete process and a highly treated effluent are required. For conditions in Ontario this method has been quite effective. Low electrical power costs have added to its economy, while the relatively high chemical costs have made precipitation methods less popular here. Recent developments on trickling filters have revived interest in this method, and by materially increasing its capacity has placed it in greater competition with activated sludge for some conditions.

There is in evidence a more favorable attitude towards making use of several methods of treatment in the one plant. New devices and modifications of processes have found application in recent years. Chemicals, filters, shortened aeration and other means are combined to advantage more frequently than was the custom formerly. Economy in obtaining the desired results has been given additional recognition.

Sludge disposal continues to be one of the troublesome problems associated with sewage treatment. More effective and more permanent procedures

are indicated as offering an acceptable solution in the immediate future. Digestion of sludge is now in use in a number of plants on this continent. The early difficulties are being solved, and the method offers attractions from the standpoint of economy. Incineration has increased rapidly. It gives promise of wider application in the future. As a sanitary measure it leaves little to be desired.

Dewatering of sludge is now less troublesome. For the smaller plants covered sand drying beds are an effective measure. Mechanical dewatering has been confined chiefly to vacuum filters, with ferric chloride as the conditioner. Elutriation, as practiced at Winnipeg and in different places in the United States has been able to reduce the consumption of chemicals and to produce a dryer cake.

Removal of sludge in the wet state has found an increasing application in Ontario plants. At London it has been removed in closed tank trucks for use as a fertilizer. The costs involved have been reasonable, and possibly lower than for other methods. Since this is done by contract no capital expenditure is involved for the municipality. This has been extended to Guelph, and a somewhat similar practice is followed at Stratford where partial dewatering is carried out.

Operation of Sewage Treatment Plants.

The operation of sewage treatment plants is of increasing importance. This is particularly so in the summer when warm weather combines with low stream flows to intensify conditions. There must be due recognition of the necessity for careful operation of these works. Without trained and conscientious operators this objective will fall short. Greater emphasis must be placed on the training of personnel.

The staff of the Division has devoted a good deal of attention during the year to the supervision of sewage works, and to assisting those in charge. The critical periods occur in the summer, but by the use of various aids these have been met successfully during the year.

Grand River Conservation Scheme.

The wide variations in flow in the Grand River have intensified the problems of flood control and sewage disposal. A forward step in the regulation of this situation was taken during the year. Legislation was passed setting up a commission to proceed with a conservation project. A consulting engineer was appointed to prepare the necessary plans, and to inaugurate the work at an early date. The project will involve the construction of dams which will act both for flood control and for the storage of water which can be released in the dry periods. This additional dilution of sewage effluents from the urban centres on the river will prove a most useful aid, and will result in marked economies in sewage treatment. The construction programme should be well under way in 1939.

Milk Control.

An important step was taken during the year in milk control. Legislation was passed for the compulsory pasteurization of milk in all cities or towns, and such other areas as might be designated at any time by Order-in-Council. This is an amendment to Section 95 of the *Public Health Act*. This Act, as well as regulations made pursuant to it, came into effect on October 1st, 1938. This included 27 cities and 149 towns. At the same time the areas around most of the cities and some towns were brought under the Act.

On December 31st, 1938, a further group of 37 villages were designated for compulsory pasteurization. At the end of the year this legislation had been applied to all cities, towns, villages over 1,000 population, a number of smaller villages, and to the whole or parts of 58 townships.

When the legislation was enacted there were approximately 550 pasteurizing plants in operation in the province. At the end of the year this number had risen to well over 700.

The regulations adopted under this legislation, set up minimum standards for all pasteurizing plants. There is a requirement that each plant must have a certificate of approval from the Department. This can be granted only when the provincial standards are met. The inspection of these dairies has meant a very substantial increase in the work of the Division. Until the plants are up to the minimum requirements this extra work will continue. It has been carried on in conjunction with other field activities, and by temporarily keeping other work at a minimum the inspection has progressed at a substantial rate. The necessity for uniform standards in plants and in equipment has been made evident repeatedly. This leads not only to greater factors of safety but to a higher standard of milk for human consumption.

The areas included under the Act on October 1st are shown in Table No. 5. Those listed in the Order-in-Council for December 31st are given in Table No. 6. In addition to these all towns and cities were included in the Act itself.

A new pamphlet entitled "Safe Milk for Rural Communities" was published during the year. It is designed to give advice on pasteurization for rural dwellers.

Refuse Collection and Disposal.

In the sanitary problems which cause concern to municipalities, that of the collection and disposal of refuse ranks high among these difficulties. Complaints continue to reach the Department about odors and other objectionable features of refuse dumps. As time goes on the difficulty of securing suitable sites becomes more involved. Incineration has been in use in a relatively few centres. The cost of this is not out of proportion, and the many advantages it offers should induce a greater utilization of the process. The approval of refuse dumping sites does not come under the jurisdiction of the Department; but is a responsibility of the municipal authorities.

Recreational Sanitation.

Sanitation in the recreational areas of this province is ever important. The motor tourist traffic and the extensive use of summer areas have grown to occupy a conspicuous position, and an activity involving large expenditures. These include highway tourist camps, private lodging houses, refreshment services, summer camps of various kinds, hotels, and private cottages in the lakeland areas.

Supervision of motor tourist camps and highway refreshment services has been left to the local medical officers of health as in the previous year. Report forms are sent out upon which information is returned to the Department. A certificate form for use of the local health officer has been prepared by the Department. This will give recognition to those which meet the minimum standards adopted by the Department. Returns submitted to the Department in 1938 include 308 tourist camps and 413 refreshment booths.

The lakeland regions of the province offer a special problem in sanitation. These areas are the mecca of great crowds during the summer. They are accommodated in private cottages, boarding houses and hotels. The protection of the water supply, the proper disposal of sewage and wastes, and the supervision of food supplies are all matters of major concern. The larger places are now almost all using chlorination where surface waters are employed. Regular inspection of these places has been carried on by the Division. While the period is relatively short a good deal of attention is required to ensure proper protection for the vacationists. The services of the Department have been available to the operators of fresh air camps and summer places at all times. Since there is no legislation for licensing or otherwise controlling these services compliance with standards is purely voluntary.

Complaints.

The number of requests for assistance, with respect to complaints, continues to require a substantial amount of time of the staff. These come chiefly from health officers, municipal officials, and the public. The majority of these concern matters which require technical direction. A variety of subjects are included. These reached a total of over 175 in 1938.

Some of the more troublesome matters giving rise to complaints concern milk wastes, cannery wastes, odors, refuse, drainage, noise, and various industrial wastes. Milk wastes have proven very troublesome where they must be discharged into watercourses almost dry in the summer. The amount involved is frequently too small to merit the cost of trickling filters, chemical precipitation processes or similar devices. Use has been made of settling tanks and sub-surface field tiles. Where suitable soil is available a good measure of success has been obtained.

Canning factory wastes and those from other industrial plants have caused many difficulties. These wastes are high in organic content and putrefaction soon sets up. The cost of filtration plants for such short seasons is usually too expensive. The application of the liquids, after screening, to land has offered a good chance of success.

Eastern Ontario Health Unit.

Work in the Eastern Ontario Health Unit has continued. Mr. G. A. H. Burn has been stationed at Alexandria and has continued to do effective work in sanitation throughout the entire eastern part of the province. His report on the year's activity appears on page 95 of this Report.

Attached is a list of the water works and sewerage certificates issued during the year.

SUMMARY

Re Waterworks:	Estimated Cost
Extensions to existing systems.....	\$ 442,720 23
Purification of water supplies.....	140,500 00
New Systems.....	.....
Total.....	\$ 583,220 23
Re Sewerage:	
Extensions to existing systems.....	\$1,053,223 91
Treatment works.....	23,245 12
New Sewerage systems.....	6,862 54
Total.....	\$1,083,331 57
The total number of applications favorably reported upon re Waterworks and Sewerage for the year was 214 and involves an estimated expenditure of.....	
	\$1,666,551 80

CERTIFICATES ISSUED RE SEWERAGE FOR THE YEAR 1938

MUNICIPALITY	No. of Certificates	Sewer Extensions	Disposal	New
Belleville.....	1	\$ 1,100 00	\$.....	\$.....
Brantford.....	1	1,177 50	.....	.....
Brockville.....	1	2,279 00	.....	.....
Chatham.....	2	5,951 50	.....	.....
Cornwall.....	1	615 00	.....	.....
Cornwall Township.....	2	7,725 00	.....	.....
Dymond Township.....	1	6,370 00	.....	.....
Elmira.....	1	512 52	.....	.....
Etobicoke Township.....	4	282,137 46	.....	6,862 54
Forest Hill Village.....	4	26,455 00	.....	.....
Fort William.....	3	33,180 00	.....	.....
Galt.....	2	2,175 00	.....	.....
Hamilton.....	5	27,969 00	.....	.....
Hanover.....	1	8,600 00	.....	.....
Kingston.....	3	1,196 20	.....	.....
Kitchener.....	4	11,732 38	1,500 00	.....
Leaside.....	3	66,271 03	.....	.....
London.....	5	12,299 14	.....	.....
Ottawa.....	23	229,478 00	.....	.....
Peterborough.....	3	2,064 70	.....	.....
Port Arthur.....	1	4,025 00	.....	.....
Preston.....	1	830 30	.....	.....
Rockcliffe Park.....	3	18,767 93	.....	.....
St. Catharines.....	1	3,382 00	.....	.....
Sarnia.....	2	14,558 28	.....	.....
Scarborough Township.....	4	9,678 32	6,942 12	.....
Stamford Township.....	2	1,530 46	.....	.....
Sudbury.....	3	33,869 91	.....	.....
Swansea.....	4	37,371 00	.....	.....
Teck Township.....	3	23,805 50	.....	.....
Timmins.....	4	54,829 95	.....	.....
Tisdale Township.....	3	21,920 70	14,803 00	.....
Toronto.....	10	46,435 00	.....	.....
Tweed.....	1	1,350 00	.....	.....
Westminster Township.....	3	4,736 62	.....	.....
Whitby.....	1	651 30	.....	.....
Woodstock.....	2	3,543 20	.....	.....
York Township.....	2	1,180 00	.....	.....
York East Township.....	3	9,240 00	.....	.....
York North Township.....	4	32,230 00	.....	.....
Total.....	126	\$1,053,223 91	\$ 23,245 12	\$ 6,862 54

CERTIFICATES ISSUED RE WATERMAIN EXTENSIONS, PURIFICATION,
ETC., FOR THE YEAR 1938

MUNICIPALITY	No. of Certificates Issued	Watermain Extensions	Supply and Purification	New Systems
Ancaster Township.....	3	\$ 4,659 00	\$.....	\$.....
Anderdon Township.....	1	1,520 00	.....	.....
Barton Township.....	3	27,445 00	.....	.....
Bowmanville.....	1	20,000 00	.....	.....
Chatham.....	1	500 00	.....	.....
Cornwall.....	2	5,095 00	.....	.....
Cornwall Township.....	2	6,370 00	.....	.....
Etobicoke Township.....	2	2,885 00	.....	.....
Ferris West Township.....	1	.....	17,500 00	.....
Fort William.....	4	8,185 97	.....	.....
Galt.....	2	2,440 16	.....	.....
Grimsby North Township.....	1	18,000 00	.....	.....
Hamilton.....	3	37,231 00	.....	.....
Kitchener.....	1	1,184 00	.....	.....
Lambeth.....	1	195 00	.....	.....
Leaside.....	2	19,763 39	.....	.....
New Liskeard.....	1	17,575 00	.....	.....
Newmarket.....	1	17,000 00	.....	.....
Niagara Falls.....	1	1,145 00	.....	.....
Orillia.....	1	4,750 00	.....	.....
Oshawa.....	1	11,243 64	.....	.....
Ottawa.....	1	40,000 00	.....	.....
Oxford East Township.....	1	500 00	.....	.....
Port Arthur.....	1	3,392 00	.....	.....
Port Hope.....	1	.....	20,000 00	.....
Sarnia.....	2	3,000 00	.....	.....
Scarborough Township.....	3	4,848 00	45,000 00	.....
Shelburne.....	1	.....	4,500 00	.....
Stamford Township.....	2	3,893 55	.....	.....
Sudbury.....	3	21,736 35	.....	.....
Teck Township.....	3	28,523 00	.....	.....
Timmins.....	2	20,119 80	.....	.....
Tisdale Township.....	1	10,326 44	.....	.....
Toronto.....	5	38,044 38	.....	.....
Tweed.....	1	1,150 00	.....	.....
Westminster Township.....	3	7,568 00	.....	.....
Woodstock.....	1	.....	35,000 00	.....
York Township.....	13	29,091 00	.....	.....
York East Township.....	1	6,854 25	.....	.....
York North Township.....	7	15,586 30	18,500 00	.....
Zurich.....	1	900 00	.....	.....
Total.....	88	\$ 442,720 23	\$ 140,500 00	.....

TABLE No. 1

WATER FILTRATION PLANTS IN ONTARIO

(a) Mechanical, Pressure Type

MUNICIPALITY	Source of Supply	Approximate Population Served	Number of Units	Date of First Installation
Arnprior.....	Madawaska R.....	4,200	3	1900
Belle River.....	L. St. Clair.....	1,150	2	1926
Cardinal.....	St. Lawrence R.....	1,400	2	1898
Chatham.....	Thames R.....	17,500	8	1895
Chippawa.....	Welland R.....	1,195	1	1924
Cobourg.....	L. Ontario.....	6,100	5	1913
Crystal Beach.....	L. Erie.....	8,000	3	1925
Grimsby.....	L. Ontario.....	2,500	3	1293
Haileybury.....	L. Temiskaming.....	2,720	5	1911
Kapuskasing.....	Kapuskasing R.....	3,350	2	1928
Kingsville.....	L. Erie.....	2,226	3	1926
Lindsay.....	Scugog R.....	7,167	5	1917
Merritton.....	Welland Canal.....	2,800	4	1927
Napanee.....	Napanee R.....	3,100	3	1930
New Toronto.....	L. Ontario.....	18,786	18	1927
Niagara.....	Niagara R.....	1,800	3	1917
Orillia.....	L. Couchiching.....	8,664	5	1915
Perth.....	Tay R.....	4,215	2	1918
Picton.....	Bay of Quinte.....	3,300	2	1928
Port Colborne.....	Welland Canal (L. Erie)..	11,010	4	1924
Port Stanley.....	L. Erie (Winter).....	700	2	1935
	(Summer).....	5,000		
Renfrew.....	Bonnechere R.....	5,360	6	1897
Sturgeon Falls.....	Sturgeon R.....	4,300	3	1931
Swastika.....	Blanche R.....	400	1	1928
Tecumseh.....	Detroit R.....	3,200	3	1918
Thornbury.....	Beaver R.....	500	6	1923
Thorold.....	Welland Canal.....	5,100	4	1927
Thorold Township.....	Welland Canal.....	1,500	2	1928
Tilbury.....	L. St. Clair.....	2,000	2	1931
Wallaceburg.....	Snye R. (St. Clair R.).....	4,915	2	1914
Wheatley.....	L. Erie.....	950	1	1929

Total Number of Plants—31.

(b) Mechanical, Gravity Type

MUNICIPALITY	Source of Supply	Approximate Population Served	Number of Units	Date of First Installation
Amherstburg.....	Detroit R.....	3,200	4	1918
Belleville.....	Bay of Quinte.....	15,000	4	1931
Brantford.....	Grand R.....	32,212	6	1931
Burlington.....	L. Ontario.....	4,900	3	1936
Dundas.....	Creek.....	5,000	2	1917
Dunnville.....	Grand R.....	3,605	3	1922
Hamilton.....	L. Ontario.....	159,020	12	1933
Hawkesbury.....	Ottawa R.....	5,600	4	1919
Huntsville.....	Hunter's Bay.....	2,750	2	1932
Iroquois Falls.....	Abitibi R.....	4,976	4	1925
Niagara Falls.....	Niagara R.....	24,527	8	1931
North York Township..	Don R.....	10,000	3	1923
Oshawa.....	L. Ontario.....	26,120	8	1917
Ottawa.....	Ottawa R.....	155,000	10	1932
Peterborough.....	Otonabee R.....	23,473	6	1922
Richmond Hill.....	Spring Creek.....	1,374	3	1921
St. Catharines.....	Welland Canal.....	30,000	6	1926
St. Thomas.....	Kettle Creek.....	17,500	4	1890
Scarborough Twp.....	L. Ontario.....	5,200	4	1921
Smith's Falls.....	Rideau R.....	7,000	3	1924
Toronto.....	L. Ontario.....	700,000	10	1918
(New Plant Under Construction)				
Welland.....	Welland Canal.....	16,000	4	1927
Windsor.....	Detroit R.....	109,000	10	1926
Total Number of Plants—23.				

(c) Slow Sand Filtration Plants

MUNICIPALITY	Source of Supply	Population Served	Date Constructed
Kincardine.....	L. Huron.....	2,036	1922
Owen Sound.....	Sydenham R.....	11,935	1919
Port Credit.....	L. Ontario.....	1,225	1922
Port Hope.....	L. Ontario.....	4,344	1915
Toronto.....	L. Ontario.....	700,000	1912
Whitby.....	L. Ontario.....	4,360	1922

TABLE No. 3
MUNICIPAL SEWAGE TREATMENT PLANTS

MUNICIPALITY	Population Served	Date Built	Type of Treatment
Alliston.....	1,350	1929	Activated Sludge
Almonte.....	2,350	1931	Sedimentation Tank
Aurora.....	2,600	1932	Activated Sludge
Barrie.....	3,000	1908	Sedimentation Tank
Blind River.....	2,800	1928	Sedimentation Tank
Bowmanville.....	3,550	1913	Imhoff and Sprinkling Filters
Brampton.....	4,500	1906	Activated Sludge
Burlington.....	3,400	1915	Imhoff and Sprinkling Filters
Capreol.....	1,500	1929	Sedimentation Tank
Cardinal.....	1,300	1933	Sedimentation Tank
Carleton Place.....	4,250	1912	Sedimentation Tank
Chippawa.....	1,100	1924	Sedimentation Tank
Cochrane.....	3,000	1924	Activated Sludge
Collingwood.....	6,250	1905	Sedimentation Tank
Coniston.....	2,000	.....	Sedimentation Tank
Crowland Township.....	1,500	1931	Activated Sludge
Crystal Beach.....	6,000	1925	Activated Sludge
Dundas.....	5,000	1914	Imhoff and Sprinkling Filters
East York Township—			
(a) Danforth Park.....	12,000	1927	Activated Sludge
(b) Todmorden, Greenwood	10,000	1926	Activated Sludge
Elmira.....	3,000	1924	Sedimentation Tank
Falkenbridge.....	300	1934	Sedimentation and Sprinkling Filter
Fergus.....	2,300	1932	Sedimentation Tank
Fort Erie.....	6,000	.....	Sedimentation Tank
Fort William (part of City).....	.....	1932	Sedimentation Tank
Galt.....	1,400	1904	Sedimentation Tank
Grimsby.....	2,000	1930	Activated Sludge
Guelph.....	21,000	1909 & 22	Activated Sludge
Haileybury.....	2,850	1906	Sedimentation Tank
Hamilton.....	153,500	1928	Screens (Other treatment earlier)
Hanover.....	3,000	1934	Sedimentation Tank
Iroquois Falls.....	1,500	1918	Sedimentation Tank
Kingsville.....	2,400	1927	Sedimentation Tank and Chlorin- ation
Kirkland Lake.....	22,000	1924	Sedimentation Tank
Kitchener—			
(a) Spring Valley.....	7,400	1925	Activated Sludge
(b) Doon.....	25,400	1931	Sedimentation Tanks
London—			
(a) East End.....	6,000	1916	Imhoff and Sprinkling Filters
(b) South End.....	5,000	1925	Activated Sludge
(c) West End.....	60,000	1926	Activated Sludge
Long Branch.....	3,800	1925	Activated Sludge
Napanee.....	3,000	1912	Imhoff Tank
New Liskeard.....	3,000	1910	Sedimentation Tank
New Toronto and Mimico.....	14,000	1913 and 1932	Activated Sludge
Nipigon.....	300	.....	Sedimentation Tank
North Bay.....	16,000	1925	Sedimentation Tank
North York Township.....	1,000	1929	Activated Sludge

MUNICIPAL SEWAGE TREATMENT PLANTS—Continued

MUNICIPALITY	Population Served	Date Built	Type of Treatment
Oakville.....	3,300	1910	Sedimentation Tanks
Orangeville.....	2,700	1929	Activated Sludge
Oshawa.....	23,000	1910	Sedimentation Tank
Palmerston.....	1,800	1928	Activated Sludge
Peterborough.....	23,000	1926	Activated Sludge
Port Colborne—			
(a) East Side.....	5,400	1928	Activated Sludge
(b) West Side.....	5,400	1928	Activated Sludge
Preston.....	5,700	1906	Interm. Sand Filters
Rainy River.....	1,400	1909	Sedimentation Tank
Riverside.....	3,000	1925	Activated Sludge
St. Thomas.....	16,000	1924	Activated Sludge
Scarborough Township.....	6,500	1928	Activated Sludge
Simcoe.....	4,500	1914	Interm. Sand Filters
Stamford Township.....	6,500	1929	Sedimentation Tank
Stratford.....	18,000	1923	Activated Sludge
Sudbury.....	18,000	1931	Fine Screens and Incineration
Swansea.....	5,500	1929	Activated Sludge
Tillsonburg.....	3,400	1913	Sedimentation Tank
Timmins.....	5,500	1921	Activated Sludge
Toronto—			
(a) North Toronto.....	60,000	1929	Activated Sludge
(b) Morley Ave.....	570,000	1911	Sedimentation Tanks
Trenton.....	6,350	1910	Sedimentation Tank
Tweed.....	1,350	1929	Sedimentation Tank
Waterloo.....	7,450	1906	Interm. Sand Filters
Weston.....	4,150	1913	Sprinkling Filters
Whitby.....	5,200	1914	Imhoff and Sprinkling Filters
Warton.....	1,950	1906	Sedimentation Tanks
Wingham.....	2,300	1910	Sedimentation Tanks
Woodstock.....	11,000	1921	Activated Sludge
York Township.....	60,000	1925	Activated Sludge
Total Number of Plants—75.			

TABLE No. 4

METHODS OF SLUDGE DISPOSAL

(a) *Municipalities Using Tank Removal or Open Drying Beds:*

Alliston, Barrie, Blind River, Bowmanville, Burlington, Capreol, Cardinal, Carleton Place, Chippewa, Cochrane, Collingwood, Coniston, Crowland Township, Crystal Beach, Dundas, Elmira, Falkenridge, Fort Erie, Galt, Guelph, Haileybury, Hanover, Iroquois Falls, Kingsville, Kirkland Lake, Kitchener (Spring Street), London (East End and South End), Napanee, New Liskeard, North York Township, Oakville, Orillia, Oshawa, Palmerston, Preston, Riverside, St. Thomas, Simcoe, Stamford Township, Stratford, Tillsonburg, Timmins, Trenton, Tweed, Waterloo, Weston, Whitby, Warton, Wingham.

Total number—51.

(b) *Municipalities Using Separate Digestion:*

Brampton, Danforth Park, Todmorden, Greenwood, Fort William, Kitchener (Spring Street and Doon), New Toronto-Mimico, North York Township, Orangeville, Port Colborne (East Side and West Side), Swansea, North Toronto, Waterloo.

Total number—14.

(c) *Municipalities Using Vacuum Filtration:*

Long Branch, Scarborough Township, York Township.

Total number—3.

(d) *Municipalities Using Glass-covered Drying Beds:*

Aurora, Danforth Park, Todmorden-Greenwood, Kitchener (Doon), New Toronto-Mimico, Orangeville, Port Colborne (East and West Sides), Swansea, North Toronto, Woodstock.

Total number —11.

TABLE No. 5

AREAS DESIGNATED FOR MILK PASTEURIZATION

Under Section 95a of The Public Health Act.

ORDER-IN-COUNCIL

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 24th day of June, A.D., 1938.

Upon the recommendation of The Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 95a of *The Public Health Act*, as enacted by *The Public Health Amendment Act, 1938*, the said section 95a of *The Public Health Act* be made applicable to the municipalities and areas set forth in the memorandum hereto attached, and that this Order shall come into force on *October the first, 1938*.

Certified,

C. F. BULMER,

Clerk, Executive Council.

AREAS DESIGNATED FOR MILK PASTEURIZATION

Under Section 95a of The Public Health Act

SECTION 95 (a) OF THE PUBLIC HEALTH ACT SHALL APPLY TO THE FOLLOWING MUNICIPALITIES AND AREAS:

1. *In the Vicinity of the City of Toronto—York County:*

York Township, East York Township, North York Township, Scarborough Township, Etobicoke Township, Swansea, Forest Hill, Long Branch, Port Credit and Richmond Hill.

2. *In the Vicinity of the City of Hamilton—Wentworth County:*

That part of Barton Township between Burlington Bay and south to and including the road between concessions 4 and 5 (Mohawk Trail), and also Hamilton Beach. Saltfleet Township between the Western Boundary, Burlington Bay and Lake Ontario, East to the road between Lots 28 and 29 and South to the Niagara escarpment. East Flamboro Township between Burlington Bay and the Canadian National Railway tracks.

3. *In the Vicinity of the City of Ottawa—Carleton County:*

That part of Nepean Township between the Ottawa River and the Base Line road extended through Bell Corners and City View to the road between Concessions A and B and then south to the road between Lots 30 and 31, then east to the Rideau River; and that part of Gloucester Township bounded by the Ottawa River on the north; the Rideau River on the west; on the south by the Walkley Road (between Concessions 3 and 4) and on the east by the road between Lots 15 and 16 through Blackburn station to the Ottawa River; and the Village of Rockcliffe Park.

4. *In the Vicinity of the City of Windsor—Essex County:*

The Townships of Sandwich East and Sandwich West.

5. *In the Vicinity of the City of London—Middlesex County:*

The south-east corner of London Township bounded on the west by the road between Lots 20 and 21 and on the north by the road between Concessions 3 and 4. The north-east corner of Westminster Township bounded on the west by the road between Lots 36 and 37; and on the south by the road between Concessions 2 and 3, together with Byron Village and Springbank Park in the Township of Westminster.

6. *In the Vicinity of the City of Brantford—Brant County:*

The area in Brantford Township bounded on the north by the road between Concessions 2 and 3 extending from the Grand River to Fairchild Creek; on the west by the Grand River and the City of Brantford; on the south by the Grand River and a line parallel to and 180 feet south of the Brantford-Hamilton Highway; and on the east by Fairchild Creek.

7. *In the vicinity of the City of St. Catharines—Lincoln County:*

All of the Township of Grantham west of the New Welland Ship Canal, including Port Dalhousie.

8. *In the vicinity of the City of Fort William—District of Thunder Bay:*

The Township of Neebing.

9. *In the vicinity of the City of Kingston—Frontenac County:*

That part of the Township of Pittsburg lying south of the road between Concessions 4 and 5; and that part of the Township of Kingston lying south of the road between Concessions 3 and 4.

10. *In the vicinity of the City of Oshawa—Ontario County:*

The area in the Township of Whitby East, lying south of the road between Concessions 4 and 5.

11. *In the vicinity of the City of Sault Ste. Marie—District of Algoma:*

The Township of Korah and Tarentorus.

12. *In the vicinity of the City of Peterborough—Peterborough County:*

The area in the Township of North Monaghan bounded by the City of Peterborough, the Otonabee River, Cameron St., Western Ave., and Provincial Highway No. 28; and the area in the Township of Smith immediately north of the City of Peterborough and bounded by the following streets: Wolsely, Stewart, Bellevue, Bernardo and McLennan.

13. *In the vicinity of the City of Port Arthur—District of Thunder Bay:*

Township of McIntyre.

14. *In the vicinity of the City of Sudbury—District of Sudbury:*

The Townships of McKim, Neelon, Garson, Falconbridge, Dryden, Snider and Creighton.

15. *In the vicinity of the City of Niagara Falls—Welland County:*

The Village of Chippawa, and that part of Stamford Township east of the Montrose road extended to the northern boundary of the Township.

16. *In the vicinity of the City of Sarnia—Lambton County:*

The Village of Point Edward.

17. *In the vicinity of the City of North Bay—District of Nipissing:*

West Ferris Township and Widdifield Township.

18. *In the vicinity of the City of St. Thomas—Elgin County:*

The area described as follows: Commencing at a point on the centre line of the road south of the 6th Concession of Yarmouth where it is intersected by the centre line of the side-road between Lots 7 and 8; thence northerly along the centre line of the said side-road between Lots 7 and 8 to where it is intersected by the centre line of the road south of the 8th concession; thence easterly on the centre line of the said road to the line between Lots 8 and 9; thence northerly thereon to the centre line of the road lying south of the first Range south of the Edgeware Road; thence easterly along the said centre line to where it is intersected by the line between Lots 7 and 8 in the first Range south Edgeware Road; thence northerly to the centre line of the unopened portion of Edgeware Road; thence westerly thereon to the intersection of the Edgeware Road and the Bostwick line in the Township of Southwold; thence northwesterly along the said Bostwick line to its intersection with the line between Lots A and B; thence south-westerly along the said line between Lots A and B and its south-westerly projection to the point where it is intersected by the north-westerly projection of the centre line of the road between Lots 42 and 43; thence southeasterly along the centre line of the said road and its south-easterly projection to the centre line of Kettle Creek; thence southerly thereon following the several courses and windings thereof to where the centre line of the said creek is intersected by the centre line of the road lying south of the 6th concession of Yarmouth produced westerly; then easterly on the centre line of the said road to the place of beginning.

19. *In the vicinity of the City of Chatham—Kent County:*

The area in Chatham Township bounded by the road between Concessions 2 and 3, the road between Lots 6 and 7, the Thames River and the Township boundary; also the area in Dover East Township bounded by the road between Concessions 2 and 3, the Township boundary, the Thames River and the road between Lots 19 and 20; also the area in Harwich Township bounded by the Thames River, the road between Lots 6 and 7, the road between Concessions 4 and 5 and the City limits; also the area in Raleigh Township between the Thames River and the road between Concessions 6 and 7.

20. *In the vicinity of the City of Belleville—Hastings County:*

The south-east corner of Sidney Township bounded on the west by the road between Lots 30 and 31 and on the north by the road between Concessions 2 and 3; and the south-west corner of Thurlow Township bounded on the north by the road between Concessions 2 and 3, and on the east by the road between Lots 12 and 13.

21. *In the vicinity of the City of Galt—Waterloo County:*

The area in the Township of North Dumfries lying north of the road between Concessions 9 and 10 and east of the line between Lots 13 and 14 in Concessions 10 and 11 and the line between Lots 16 and 17 in Concession 12.

22. *In the vicinity of the City of Welland—Welland County:*

The south-west corner of Crowland Township bounded on the north by the road between Concessions 3 and 4 and on the east by the road between Lots 20 and 21.

23. *In the vicinity of the Town of Amherstburg—Essex County:*
Bob-Lo Island.

24. *In the vicinity of the Town of Burlington—Halton County:*
Burlington Beach.

25. *In the vicinity of the Town of Cobalt—District of Temiskaming:*
The Township of Coleman.

26. *In the vicinity of the Town of Cornwall—Stormont County:*
That part of Cornwall Township south of the road between Concessions 4 and 5.

27. *In the vicinity of the Town of Fort Erie—Welland County:*
Bertie Township between the Niagara River and the line between Concessions 2 and 3.

28. *In the vicinity of the Town of Fort Frances—District of Rainy River:*
The Township of McIrvine.

29. *In the vicinity of the Town of Iroquois Falls—District of Cochrane:*
The Township of Calvert.

30. *In the vicinity of the Town of Kenora—District of Kenora:*
The Township of Jaffray.

31. *In the vicinity of the Town of Orillia—Simcoe County:*
The Township of Orillia.

32. *In the vicinity of the Town of Port Colborne—Welland County:*
The Village of Humberstone.

33. *In the vicinity of the Town of Thornbury—Grey County:*
That part of Collingwood Township north of the line between Lots 27 and 28.

34. *In the vicinity of the Town of Timmins—District of Cochrane:*
The Townships of Tisdale, Mountjoy and Whitney.

And the Villages of:

1. Beeton
2. Bobcaygeon.
3. Watford.

4. Bolton
5. Woodbridge.
6. Sutton.

TABLE No. 6

AREAS DESIGNATED FOR MILK PASTEURIZATION

Under Section 95a of The Public Health Act.

ORDER-IN-COUNCIL

Copy of an Order-in-Council approved by the Honourable the Lieutenant-Governor, dated the 24th day of June, A.D., 1938.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 95a of The Public Health Act, as enacted by The Public Health Amendment Act, 1938, the said Section 95a of The Public Health Act be made applicable to the villages set forth in the memorandum hereto attached, and that this Order shall come into force on December the 31st, 1938.

Certified,

C. F. BULMER,
Clerk, Executive Council.

SECTION 95 (a) OF THE PUBLIC HEALTH ACT SHALL APPLY TO THE
FOLLOWING VILLAGES:

Acton	Eganville	Lakefield	Port Dover
Arthur	Elora	Lucknow	Port Elgin
Barry's Bay	Exeter	Madoc	Port Perry
Beamsville	Fenelon Falls	Markham	Shelburne
Brighton	Fergus	Milverton	Stouffville
Caledonia	Hagersville	Morrisburg	Tavistock
Cardinal	Havelock	New Hamburg	Tweed
Chesterville	Iroquois	Norwich	Victoria Harbour
Delhi	Kemptville	Port Credit	Waterford
			Winchester

DIVISION OF NURSE REGISTRATION

ALEXANDRA M. MUNN, Reg. N., *Director*

The Inspector of Training Schools for Nurses reports that during the past year visits of inspection were paid the fifty-four schools.

A general improvement over the previous year was noted in health programmes for students. Regulations relating to Tuberculosis prevention are being carefully observed and immunization work satisfactorily done.

Hours of duty by day and night are receiving special attention and Superintendents of Nurses are keenly alive to the need for improvement. Some progress has been made and there is reason to believe that there will be a definite and encouraging report by another year on the observance of a fifty-eight hour week.

The preliminary education of student nurses has been carefully checked. It has been encouraging to observe a definite improvement in the educational preparation of student nurses and the co-operation of Superintendents of Nurses in an attempt to raise the educational standard for entry to training is greatly appreciated.

Attention has been given to Obstetrical Departments in all hospitals and special note has been made of equipment and established routines.

Isolation technique was observed in some centres.

Conferences with head nurses and supervisors have been held in twenty-eight schools. Assistance in collecting material for these conferences has been given by the staff of the School of Nursing of the University of Toronto.

Talks to groups of student nurses on health and kindred subjects were given in ten schools.

Affiliations.

New affiliations established are as follows:

- Pediatric Nursing —General and Marine Hospital, Owen Sound,
General Hospital, Sarnia,
(3 months—Children's Hospital, Detroit, Mich.)
- Tuberculosis Nursing —General Hospital, Woodstock,
East General, Toronto,
Wellesley Hospital, Toronto,
(Elective—Toronto Hospital, Weston—3 months.)
- Psychiatric Nursing —General and Marine Hospital, Owen Sound,
General Hospital, Woodstock,
Wellesley Hospital, Toronto,
(Elective—3 months).

Mental Training Schools.

The Supervisor of Nursing in the Provincial Hospitals reports that in order to meet the need for more nurses with psychiatric training the student enrol-

ment in the Provincial Hospital Schools of Nursing has been increased. One hundred and thirty-nine students were accepted into these schools on completion of the preliminary term. With the same purpose the Ontario Hospital, London, instituted a three months' post graduate course in April comparable to the affiliate course given there. Twenty-seven nurses completed the course last year.

Eight of the first class of twelve men who entered the Ontario Hospital School of Nursing, Whitby, completed the first year and are affiliating for one year at the Toronto General Hospital. The second class of twelve men was admitted to the School in September, 1938.

Attendance at Dominion and Provincial Meetings.

The Director attended the Annual Meeting of the Registered Nurses' Association held in Kingston during Easter Week.

The Inspector of Training Schools attended the Meeting of the Canadian Nurses' Association which was held in Halifax, Nova Scotia, in July. This meeting was of special interest for the reason that the question of the establishment of a Dominion-wide registration for nurses came up for special discussion.

Discontinued Training Schools.

Training Schools for Nurses in two centres graduated their last classes in 1938, namely, those in connection with Homewood Sanitarium, Guelph, and the Public General Hospital, Smith's Falls.

Council of Nurse Education—Meetings.

During the year nine meetings of Council were held. Routine business in connection with Provincial Examinations was covered.

Negotiations which have been under way with the General Nursing Council for England and Wales for reciprocal registration were satisfactorily completed.

Applications for a similar arrangement have been received from Newfoundland and New Zealand. The Council advised that it would be necessary for the Inspector of Training Schools for Nurses to report on training conditions in Newfoundland before a decision could be reached and recommended that consideration of the application from New Zealand be deferred for a period of one year.

Following the consideration of a special report on educational requirements for entry to training schools, which was presented by the Inspector of Training Schools at the December meeting of the Council of Nurse Education, it was recommended to the Hon. the Minister of Health that the enforcement of the Regulation requiring twelve Middle School papers by July 1, 1939, be deferred until October 1, 1940.

This recommendation was approved by Lieutenant-Governor-in-Council and the Superintendents of Training Schools notified to this effect.

Amendment to the Nurse Registration Act.

An amendment to the Nurse Registration Act was passed at the last Session of Parliament which makes it unlawful for any hospital or organization to conduct a training school for nurses without authorization in writing from the Hon.

the Minister of Health. Following the passing of this amendment and arising out of certain recommendations made to the Minister by the Council of Nurse Education a Special Committee, composed of representatives of the Registered Nurses' Association of Ontario and the Council of Nurse Education, was called to consider the advisability of offering a course of training for practical nurses. One meeting of this Committee has been held to consider tentative plans.

History of Nursing Slides.

History of Nursing Slides, which were purchased in 1938 for loan to the training schools for nurses, have been kept in constant circulation over the past four months. These have been shown in six schools and the service is greatly appreciated by Hospital Superintendents and Instructors.

STATEMENT OF REGISTRANTS

Total number registered, 1938.....	1,255
Total number taking examinations, 1938.....	1,279
Total number registered since 1923.....	22,783

STATEMENT OF REVENUE

Registration Fees.....	\$ 5,970 00
Re-Registration Fees.....	14,502 00
Training School Records.....	96 75
Examination Fees.....	5,797 00
Miscellaneous.....	34 91
	\$ 26,400 66

HEALTH EDUCATION

MARY POWER, B.A.

I. Public Health Education.

The Department's publication on the care of the child from birth to six years, "The Baby," has been in demand this year to the extent of 34,000 copies. Literature on specific subjects is prepared and distributed through the respective divisions. Information on general health topics has been requested during the year by numerous organizations and by individuals. The policy of the Department is to build up the work of the local health authorities. To this end, requests are acknowledged and then transferred to the local Medical Officer of Health, who thus has an opportunity to learn the nature and extent of the demand for help in health education as expressed in his community, whether it be by lay organizations, teachers, or individual requests. The Department supplies material in the quantity required, either direct to the inquirer or through the local health officer, according to the wishes of the latter. This policy is sound and proving satisfactory to the local health authorities.

Invitations to address meetings and groups have been accepted throughout the year, and articles for professional journals have been prepared upon request. An exhibit was displayed at the International Ploughing Match which was held this year near Barrie. Enterprises which were worked out in fifty rural schools of York Inspectorate No. 1 were assembled at the Summer Course in Health Education and later set up in the education section of the Canadian National Exhibition. These materials were illustrative of the health aspects of various activities and studies in all grades of the elementary school.

II. School Health Education.

The main item to report under this heading is the completion of "Health—A Handbook of Suggestions for Teachers in Public and Separate Schools." This was printed as a joint effort. The Department of Education met the cost of the printing, and the Department of Health supplied the stock for the inside and the cover. This arrangement made it possible to supply a copy to each classroom in the elementary schools of the Province, without charge to the local boards or the teachers, through the inspector of schools.

The Handbook was an assignment which has been in course of preparation since the need for such an aid was expressed by the teachers in the Demonstration during the school year 1931-32. The content of the Handbook is the result of seven years' experimental work and is based on actual classroom experience. The experiment was outlined in Appendix A of the Annual Report of the Department last year.

In order to provide for distribution to interested parties other than the teachers in the elementary schools of Ontario, arrangements were made with the publishers (Ryerson Press, Toronto), for a commercial edition which might be available to parents, health workers, and others in Ontario, as well as to health and educational officials outside the Province.

The content of the Handbook is designed to give to the teacher a general insight into the place of health in education; the gradation of the material to

be presented as the child progresses in his growth and development; a limited amount of technical knowledge; and an outline of statutory requirements and clinical symptoms relating to the commoner communicable diseases.

The service to teachers was confined, during the school year 1937-38, to a loan service of teachers' references; the distribution of suitable health literature as it was issued by official, voluntary or commercial agencies; and the Open House or personal consultation service on Saturday morning in the office, Room 5602, Parliament Buildings. These services were given to teachers who had attended the Summer course since its inception in 1933.

Since September, 1938, when all teachers were given a copy of the Handbook, we have prepared budgets for teachers in the elementary school and teachers in the high school. These budgets are sent to teachers who have not taken the Summer Course in Health Education but who have requested help in the teaching of health in their specific grade. To the end of the year this service amounted to a total of one hundred for high schools and fifty to elementary schools, exclusive of nine hundred budgets which have gone forward to the teachers who have taken the Summer Course.

During the year visits were made by members of the staff to a limited number of inspectors and teachers as follow-up visits connected with the course. This entailed one hundred visits.

III. Summer Course in Health Education.

The Session of the Summer Course in Health Education was held from July 3rd to August 4th, with an attendance of 303 teachers representing 101 inspectorates in the Province. Each student was offered a tuberculin test, with an X-ray of the chest following a positive reaction, by the staff of the Division of Tuberculosis Control. This service was given without charge. Provision was made for a complete physical examination by physicians who were not members of the staff, for which service a nominal fee was charged. Nursing service was provided throughout the entire course.

A new feature was added this year when a Demonstration School with instruction in grades I to VIII, was provided as a practical part of teacher-training. The teachers were not asked to give practice lessons but were provided with opportunities to observe the organization of a school so planned as to integrate health into all activities of the school day—in the classroom, on the playground, and in the cafeteria. No fees were charged the children. Through co-operation of the Board of Education and the Separate School Board of the City of Toronto applications were forwarded from the parents of children in attendance at the various schools in the neighborhood of the Northern Vocational School. The daily attendance averaged from 82 to 85 throughout the duration of the Demonstration School, July 4th to July 29th.

IV. Ontario Health Officers' Association.

The 24th Annual Conference of the Ontario Health Officers' Association was held in Toronto at the Royal York Hotel, June 1, 2, 3. The meeting was very ably handled under the presidency of Dr. W. H. Birks, Medical Officer of Health, Bowmanville.

The Conference was most successful on the score of attendance and interest in the proceedings. The registration reached 432, and included local health administrators from all parts of Ontario. The conference afforded an opportunity to the members of meeting for the first time the Honourable Harold J.

Kirby, K.C., since his assumption of office as Minister of Health for the Province. The members gave Mr. Kirby an enthusiastic reception, and in his speech at the dinner he pledged his support and declared his office was open to any medical officer of health at any time for consultation regarding problems in his community.

As an attraction of the conference a reference library was assembled containing the latest books of reference and current periodicals in the field of public health. The librarian of the departmental library attended throughout the sessions and furnished information to the medical officers of health, public health nurses, sanitary engineers and other interested workers. This service was very much appreciated.

The following committee was appointed to study Accident Prevention:

Dr. L. A. Pequegnat, Toronto, Convener; Dr. C. E. McLean, East York; Dr. B. B. Kelly, Port Hope.

A communication was received from the Mayor of the Town of Simcoe inviting the Association to meet in Simcoe in 1939. The invitation was referred to the in-coming Executive.

The committee brought in their respective reports as follows:

1. The Committee on Resolutions, composed of Dr. Martin Powers, M. O.H., Rockland, Convener; Dr. T. A. Bertram, M.O.H., Dundas; Dr. Fred Adams, M.O.H., Windsor; submitted the following resolutions:

(1) That the Ontario Health Officers assembled in Convention in Toronto, heartily endorses the legislation passed by the Government at the 1938 Session of the Legislature, dealing with compulsory pasteurization of milk in Ontario. Carried.

(2) That this Association recommend to the Ontario Government that an active programme of education be carried out among all the people of the Province covering the danger of using raw milk. This education to cover the symptoms of Bang's disease and tuberculosis among cattle, so that farmers may recognize these diseases in their herds. Carried.

(3) That this Convention ask the Minister of Health, the Honourable Harold J. Kirby, K.C., to urge the Provincial Government to restore the grant for municipal and school nurses. Carried.

(4) That a committee be appointed by the Executive to study the subject of The Tuberculosis Rebel as to effective hospitalization. Carried.

(5) That the Ontario Government be requested to make a survey of the Trachoma situation in this Province with a view to finding:

(a) The number of cases in the Province.

(b) The number of native-born Canadians affected. Carried.

(6) That this convention recommend to the Minister of Health that any Medical Officer of Health not attending the Annual Health Officers' Convention over a period of two consecutive years without reason satisfactory to the Minister, may be recommended by the Minister for discharge by his municipality, and that a copy of this resolution be sent to all Health Officers and all Secretaries of Boards of Health. Carried.

(7) In view of the need and desirability of establishing refresher courses for Medical Officers of Health, resolved that these should be held at strategic and convenient centres. Carried.

(8) That this Meeting record our feeling that some definite basis for a more equitable remuneration could and should be obtained than that found in Section 52 of the Public Health Act; while stating at the same time our appreciation of what the Department has already done in connection with our remuneration as Medical Officers of Health. Carried.

(9) That the Minister be petitioned to fix a minimum of \$40.00, plus travelling expenses, to the Medical Officer of Health, for attendance at the Annual Conference of the Ontario Health Officers' Association. Carried.

II. The report of the Nominating Committee was submitted by Dr. W. J. Cook, of Sudbury, Convener; and Dr. J. W. Fraser, of Kitchener, and Dr. Ward Woolner, of Ayr. The committee's report was adopted and resulted in the election of the following officers and Executive for the coming year:

Honourary President—The Honourable Harold J. Kirby, K.C., Minister of Health of Ontario;

President—Dr. T. H. McColl, Medical Officer of Health, Tilbury.

1st Vice-President—Dr. C. A. Warren, Medical Officer of Health, York Township.

2nd Vice-President—Dr. F. Ladouceur, Medical Officer of Health, Casselman.

Secretary—Miss M. Power, Department of Health of Ontario.

Executive Committee:

Dr. H. E. Welsh, Roslyn.

Dr. H. B. Kenner, Stratford.

Dr. J. Edgar Davey, Hamilton.

Dr. G. B. Stalker, Hanover.

Dr. W. E. Brown, Orillia.

Dr. C. H. Bird, Gananoque.

Dr. J. W. Mackie, Lansdowne.

Dr. H. M. Young, Iroquois Falls.

Dr. J. C. Gillie, Fort William.

A copy of the programme in detail is given below:

WEDNESDAY, JUNE 1st, 1938

MORNING SESSION, 9.30 A.M.—CONCERT HALL

Registration—Wednesday and Thursday only—Convention Floor.

10.00 a.m.—Meeting of Executive Committee.

10.30 a.m.—General Session: Recent Legislation affecting the Public Health in Ontario

Dr. J. T. Phair, Chief Medical Officer of Health.

Dr. K. G. Gray, Solicitor to the Department.

Dr. F. A. Kohli, Director of Dental Services.

11.45 a.m.—Appointment of Committees:

Committee on Nominations.

Committee on Resolutions.

Committee "to study the situation in regard to accident prevention," as requested at 1937 meeting.

LUNCHEON SESSION, 12.30 P.M.—CONCERT HALL

12.30 p.m.—Luncheon.

The Training of Personnel for Local Administration of Public Health as a Responsibility of the Department of Health of Ontario—Dr. B. T. McGhie, Deputy Minister of Health.

GENERAL SESSION—CONCERT HALL.

2.10 p.m.—Presidential Address—Dr. W. H. Birks, President.

2.30 p.m.—Tuberculosis: The Significance of the 1938 Legislation in the Local Tuberculosis Program—Dr. G. C. Brink, Director, Division of Tuberculosis Control, Department of Health of Ontario.

3.00 p.m.—Sulphanilamide:

As a Therapeutic Agent in Streptococcal and other Infections—Dr. P. H. Greey, Toronto General Hospital.

As a Therapeutic Agent in Gonorrhoeal Infection—Dr. C. A. Chisholm and Dr. W. H. Murby, St. Michael's Hospital, Toronto.

3.30 p.m.—Protamine Zinc Insulin:

Advantages and Limitations in the Treatment of Diabetes—Dr. N. F. W. Graham, Director of Laboratory, Sault Ste. Marie, Ontario.

THURSDAY, JUNE 2nd

MORNING SESSION, 9.30 A.M.

THE MEDICAL OFFICER OF HEALTH IN URBAN CENTRES

Convener, Dr. J. Edgar Davey

PARLOR A

9.30 a.m.—Milk Pasteurization—Dr. A. E. Berry, Director, Division of Sanitary Engineering, Department of Health of Ontario.
Discussion led by Dr. J. W. Fraser, M.O.H., Kitchener.

9.50 a.m.—Dishwashing as it Affects Public Health: Effective Procedures—Dr. A. L. MacNabb, Director, Division of Laboratories, Department of Health of Ontario.
Discussion led by Dr. A. R. B. Richmond, Director, Division of Food Control, Department of Public Health, Toronto.

10.05 a.m.—Trachoma as a Medical Problem—Dr. A. Wahl, Department of Indian Affairs Ottawa.

Trachoma as a Public Health Problem—Dr. Fred Adams, M.O.H., Windsor.

10.25 a.m.—Venereal Disease:

(a) Among Transients: Whose Responsibility?—Dr. J. H. White, M.O.H., Fort William.

(b) When May a Case of Venereal Disease be Discharged as being No Longer a Responsibility of the Department of Public Health?—Dr. A. L. McKay, Director, Division of Preventable Diseases, Department of Health of Ontario.

10.45 a.m.—The Tuberculosis Rebel, Patient or Contact—Dr. W. Egerton George, M.O.H., Galt.
Discussion led by Dr. G. C. Brink.

11.05 a.m.—Food Handlers—Dr. A. E. Ranney, M.O.H., North Bay.
Discussion led by Dr. James Roberts, M.O.H., Hamilton.

11.25 a.m.—Revision of Section 88 of the Public Health Act to give the Medical Officer of Health the Power to Demolish—Dr. C. A. Harris, M.O.H., London.
Discussion led by Dr. D. V. Currey, M.O.H., St. Catharines.

11.45 a.m.—The Automobile as a Public Health Problem: (a) Accidents, (b) Trailers—Dr. L. A. Pequegnat, Deputy Medical Officer of Health, City of Toronto.

THE MEDICAL OFFICER OF HEALTH IN THE SMALLER COMMUNITY

CRYSTAL BALLROOM

9.30 a.m.—The Problem of Motor Accidents—Mr. Arthur Rowan, Department of Highways, Ontario.
Discussion led by Dr. T. H. McColl, Tilbury.

10.00 a.m.—Tutoring in Public Health—Miss E. L. Moore, Chief Public Health Nurse.
Discussion by Dr. Ward Woolner, Ayr, and Dr. J. M. Nettleton, Penetang.

10.30 a.m.—Tourist Facilities and Trailer Camps—Mr. E. W. Johnston, Division of Sanitary Engineering, Department of Health of Ontario.
Discussion by Dr. W. E. Wilkins, Cobourg, and Dr. M. M. Fisher, Gravenhurst.

11.00 a.m.—Milk Production Control—Dr. A. E. Berry, Director, Division of Sanitary Engineering, Department of Health of Ontario.
Discussion by Dr. C. E. Hill, North York Township, and Dr. R. W. Rankin, Tillsonburg.

11.20 a.m.—Health Problems at Bathing Beaches—Dr. A. E. Berry.

LUNCHEON SESSION

The Thursday luncheon hour has been reserved for special groups who may wish to meet together. Arrangements for reservation of Private Dining Rooms may be made through the Secretary.

GENERAL SESSION—CRYSTAL BALLROOM

Chairman—Dr. W. H. Birks

Reception of Report of Nomination Committee.

2.10 p.m.—Epidemiological Findings and Suggested Administrative Procedures Based on the 1937 Epidemic of Poliomyelitis in Ontario—Dr. J. T. Phair, Chief Medical Officer of Health.

2.30 p.m.—Pathology: Services offered to Physicians by the Department of Health—Dr. H. A. Ansley, Pathologist, Laboratory Services, Department of Health of Ontario.

2.50 p.m.—Pneumonia as a Public Health Problem:

(a) The Present Problem in Pneumonia—Dr. A. H. Sellers.

(b) Epidemiology and Etiology of Pneumonia—Dr. A. L. McKay.

(c) Diagnosis of Pneumococcic Infections by Typing Method—Dr. W. B. McClure.

3.30 p.m.—Insulin Therapy in the Treatment of Schizophrenia—Dr. N. L. Easton, Ontario Hospital, New Toronto.

DINNER SESSION, 6.45 P.M.—CRYSTAL BALLROOM

Address—J. J. McCann, M.P., M.D., Medical Officer of Health, Renfrew, Ontario.

Address—Honourable Harold J. Kirby, K.C., Minister of Health of Ontario.

FRIDAY, JUNE 3rd.

MORNING SESSION—SECTION MEETINGS, 9.30 A.M.

SECTION A—CRYSTAL BALLROOM

Convener, Dr. A. L. McKay

EPIDEMIOLOGY:

- 1.—Discussion: Venereal Disease Program in Municipalities without Clinic Service.
- 2.—Demonstrations: Undulant Fever.
Scarlet Fever Immunization.
Typhoid Investigation.
Whooping Cough Immunization.
Infectious Jaundice.

TUBERCULOSIS:

- 1.—Demonstration: The Patch Test.

9.30 A.M.

SECTION B—PARLOUR B

Convener, Dr. A. E. Berry

DISCUSSIONS:

- Community Sanitation.
- Air Conditioning.
- Pasteurization Standards.
- Inspection of Dairy Farms.
- Some Chemical Aspects of Municipal Water Supplies.
- Soft-Drink Bottling Plants.

9.30 A.M.

SECTION C—PARLOUR A

Convener, Dr. A. L. MacNabb

DEMONSTRATIONS: Submitting Laboratory Specimens for Confirmatory Tests.
Recent Advances in Connection with the Preparation of Pertussis Vaccine.
Kellogg Test as a Means of Determining the Diphtheria Antitoxin Content of an Individual's Blood Serum.
Recent Advances in the Preparation of Typhoid-Paratyphoid Vaccine.
Recent Advances in the Diagnosis of Enteric Diseases.
Phosphatase Test.
Special Bacteriological Examinations and the Submitting of Specimens for such.
Brucella Infections.
Recent Advances and Recommendations in the Serology of Syphilis.
Display of some common toxic materials used in industry which can gain access to the body through the respiratory tract.

11.15 A.M.

GENERAL AND BUSINESS SESSION—CRYSTAL BALLROOM

Reception of Reports:

Resolutions Committee, and other Committees.

Question Box.

Summary of Proceedings:

Discussion by:

Representative of Urban Medical Officers of Health.

Representative of Rural Medical Officers of Health.

Chief Medical Officer of Health representing the Department of Health of Ontario.

DIVISION OF DENTAL SERVICES

F. A. KOHLI, D.D.S., *Director.*

There has been considerable re-organization of the Hospitals service. Except in the case of Orillia, the hospital clinics were formerly on a part time basis. The present dental staff is composed of nine full-time and four part-time dentists.

A standard clinic procedure has been developed. This provides for all patients upon admission to be given a complete dental survey, the survey to include careful, systematic oral examination and dental radiographs. The standing population of the hospitals is circulated through the clinic alphabetically, and patients unable to attend, are visited in the wards.

An oral hygiene programme, under the direction of the dental surgeon, provides for supervision of the use and care of the tooth brushes and assistance by the attendant and nursing staff to those patients unable to properly care for their own mouths.

A six-day post-graduate course was arranged at the Faculty of Dentistry for the dental surgeons on the staff, in order to standardize the method of taking impressions and to give special instruction in the interpretation of radiographs. The result of the course has been to facilitate the work of the Central Laboratory which has been working to capacity.

Consultation service and regular inspection of all clinics has been given by the Director.

The Department has, for some time, been supplying health literature and survey charts for use in school dental health campaigns. A survey of thousands of Ontario school children has revealed an almost constant presence of dental defects, ranging from small cavities to serious septic conditions. Efforts must be directed towards supplying the necessary treatment. Although this is considered a municipal responsibility, the Department has this year appropriated funds to give assistance to School Boards and local Boards of Health desirous of initiating a school dental service in elementary or secondary schools.

A number of municipalities have taken advantage of the grant, and applications are pending from as many more. A great deal of interest in this work has been evinced by the various School and Service organizations throughout the province.

The plan of emergent dental treatment for relief recipients has provided necessary extractions and repairs of dentures for approximately 22,000 patients who otherwise would not be in a position to obtain treatment.

The Dental Car is giving free dental service to school and pre-school children in unorganized territory where the care of a private dentist is not available. During the past year the Car has moved eastward from Dorion to Cartier, then travelled to Ingolf on the Ontario-Manitoba border to work eastward again. Letters of appreciation have been received from the district.

DIVISION OF INDUSTRIAL HYGIENE

J. GRANT CUNNINGHAM, B.A., M.B., D.P.H., *Director.*

Industrial Hygiene activities occupying the attention of the Division cover facilities established or to be established by industries themselves for general health supervision and the control of occupational disease hazards.

General Health Supervision.

Physicians on a part time basis with nurses are employed to bring to workers at the factory, the benefits of early diagnosis and advice for the maintenance of health rather than for the active treatment of the disease. There is no legislative requirement for this procedure but the practice is spreading from the larger to the smaller factories. Apart from material improvement in health, it can be an important factor in industrial relations if the patient-physician relationship is observed.

During the last three years the examination of certain groups of workers who are required to work in close proximity to one another has revealed an inordinate number of cases of tuberculosis, no doubt due to its spread in the factory. This year, two additional groups involving six hundred examinations presented six cases of tuberculosis and four others requiring observation for which follow-up arrangements were made locally. Such a finding represents the average experience but working closely together these persons if not discovered could be expected to infect others, as appeared to occur in those previously reported. To require that workers do not sit close together or opposite one another at work involves expensive changes in process. The alternative is regular health supervision by industry itself. Many enquiries are received from employers and physicians about to inaugurate such supervision, but it is a voluntary measure and spreads slowly.

Occupational Hazards.

At the same time, such supervision where it is in effect, is the most effective control for the hazards to health associated with the use of dangerous substances. From factory medical personnel come to the attention of the Division those hazards which they have recognized but which require special investigation for which individual factories can hardly expect to be equipped. In the absence of regular health supervision, these hazards must be recognized through haphazard observation by industry itself or through factory inspectors, accident prevention inspectors, the Workmen's Compensation Board or by the Division in surveys where suspicion of hazard exists or from its contact with cases of sickness. Surveys conducted by the Division have been largely held in abeyance in favour of response to requests for assistance and the control of known hazards. About one-third of the visits made were upon request, the services of physicians, engineers or chemists being required. Correspondence and telephone enquiry for this type of assistance is a considerable item, much of it from industry; an expression of growing interest and perhaps confidence, which is the best guarantee of good working conditions. The clinical, laboratory, engineering and library facilities available, make this possible.

As previously, a great variety of substances and processes has been investigated in the industrial hygiene laboratory and in the field, with particular attention to a few, e.g., the use of benzol for vanillin extraction from wood pulp, exposure to rock wool dust, arsenic in gold ores, use of carbon tetrachloride in trichlorethylene degreasing machines, fumes in oil-fired japan ovens, sulphuryl chloride.

Some Special Enquiries.

Eighteen cases of chronic arsine poisoning in a gold refining mill were investigated and reported upon. Recommendations were made to prevent such an occurrence elsewhere.

The sulphate ratio was investigated in 68 men at benzol operations and reported on. Periodic medical examinations continue to be required for such workers.

A study of sickness experience in certain groups of workers on repetitive tasks working at a fixed pace showed a consistently higher absence record than in others in the same factories doing similar work under other conditions.

Chemical analysis of lungs from cases of silicosis coming to autopsy has continued with a view to correlation of the results with petrographic findings in material from the same source.

Apparatus for the determination of the concentration of carbon tetrachloride in air, using a combustion method has been constructed in the laboratory. The values given have been compared with those from a sensitive chemical method recently developed by Dr. H. M. Barrett at the School of Hygiene, University of Toronto. This has been used to determine the efficiency of mechanical measures for the control of these fumes produced in filling containers and in dry-cleaning.

A member of the Division represents the Department on a Sub-Committee of the Canadian Engineering Standards' Association to formulate eye-shield specifications for welders' helmets for protection of eyesight against ultra-violet light.

Some attention has been given to encouraging the development of inexpensive individual units for supplying clean air to helmets and masks worn by such workmen as sandblasters and granite-cutters.

Occupational Disease Regulations.

Supervision of reports by physicians on periodic examinations conducted, of those exposed to lead or benzol required under The Factory, Shop and Office Building Act, resulted in a few being removed from exposure and drew attention to certain processes which required correction. About seven hundred blood smears were examined in the laboratory here in addition to those by industrial physicians as part of this supervision.

The labelling of containers with lead or benzol directs inspectors to processes using these materials. The samples submitted to the laboratory for testing indicate that generally, manufacturers of these products are meeting the requirements. Although not specified in these regulations, tests show that domestic parting compounds for use in moulding operations conform to the designations used. Silica partine with its attendant hazard has almost disappeared.

Posters warning of the hazard from lead or benzol have been placed at processes using these materials in forty additional factories this year.

Control of Dust and Fumes.

Engineering services of the Division have been called upon for concrete suggestions, to include drawings, for installations to control dust and fumes at such as spray booths, chrome tanks, lead and cyanide pots, buffing wheels, aeroplane doping but especially in foundry processes. Here is emphasized the silica hazard from the sandblast, shake-out, core-knock-out and chipping operations. The response to these recommendations, sometimes involving considerable financial outlay, is relatively slow but steady. Housekeeping and sandblast operations have markedly improved. Some very extensive alterations have been made partly involving process changes. They provide an opportunity for testing directly the effect of the methods adopted. A ventilated stall for brushing bath-tubs reduced the exposure from forty million to two million particles per cubic foot of air, i.e., below the danger line—a battery of flexible-shaft grinders installed in separate booths reduced the dust exposure to two million particles per cubic foot of air—in a sand-drying operation the dust content of the air breathed by workmen was reduced from eighty million to four million particles per cubic foot. Some of these exposures require experimental tests before plant installation is started. In one of these a special hood system to remove lead dust from brush-cleaning the interior of small receptacles has proved satisfactory.

Physical Examinations.

In addition to six hundred examinations of industrial workers directed to finding cases of tuberculosis already referred to, clinical and laboratory examinations, for diagnosis of occupational disease as a lead to their source and for assistance to industrial physicians, totalled 230, a few of them from three other provinces; for the issuance of mining certificates, 123; for dust exposure surveys 140; for Government Board 270; for Workmen's Compensation Board for silicosis claims, 415 examinations in 287 cases. Of these last, forty-three per cent. were totally disabled and a third of the total were new cases. The proportion of new cases was greater among foundrymen than in miners due to an earlier accumulated experience.

The periodic examination of those exposed to silica dust other than in mines is not yet compulsory although the number of employers providing for it voluntarily, has increased. They have had considerable clinical assistance from the Division on diagnosis and advice as to the disposition of those affected, so important from the standpoint of the workman.

Dr. L. B. Leppard attended the Annual Convention of the American Foundrymen's Association for the opportunity presented to be informed of the rapid technical developments in dust control.

Dr. A. R. Riddell attended from Canada and took part in the Second International Conference on Silicosis at Geneva, Switzerland.

Dr. J. G. Cunningham attended and took part in the Symposium on Occupational Diseases presented by Northwestern Medical School, Chicago, Illinois.

Dr. F. M. R. Bulmer visited New York, New Jersey, Pennsylvania and Maryland, primarily to determine the procedure and experience there with "Bedding Laws." Since then, regulations have been drafted and passed under The Public Health Act, effective December 28, 1938. They require that mat-

tresses, pillows or upholstered furniture be labelled as containing "new," "converted" or "second-hand" material as the case may be. Disinfection and disinfection may be required by the local Medical Officer of Health or by an officer of the Department. Representatives of manufacturers, suppliers of raw material, and retailers have co-operated in inaugurating compliance with these regulations.

Fumigation Using Cyanide Compounds.

The regulations respecting cyanide compounds have caused more attention to be given to substitutes for these dangerous compounds. The number of permits for fumigators using cyanide has decreased, e.g., in Toronto from about 1600 in 1937 to 1200 in 1938. Certain Casualty Insurance companies are carrying the risk for fumigators, subject to conditions in the public interest, set down by the Superintendent of Insurance. There have been no fatalities during the year. Twenty-three persons have licenses in good standing from the Department at the end of the year. Eighteen persons have licenses restricted to commercial fumigation where insurance is not required.

Tests have been made to determine concentrations of "Proxate," a mixture of methylbromide and carbon dioxide in rooms adjoining those sealed for using this material as a fumigant. Amounts detected were considerably below toxic levels but, of course, care is still necessary in handling it and in sealing rooms in which it is to be used. Tests have been made of the use of a warning gas other than those now approved. These tests so far have not been successful.

The close co-operation of the Factory Inspection Branch of the Department of Labour, the Workmen's Compensation Board and the Accident Prevention Associations, is appreciated especially in the control of occupational diseases.

The following articles have been prepared and delivered or published during the year:

1. Industrial Cadmium Poisoning—A Report of Fifteen Cases including two deaths, by Dr. F. M. R. Bulmer, H. E. Rothwell and E. R. Frankish. Canadian Public Health Journal, January, 1938, pages 19-26.
2. A Study of a Fatal Case of Uncomplicated Silicosis, by A. R. Riddell, C. M. Jephcott and Dudley A. Irwin. The Journal of Industrial Hygiene and Toxicology, Vol. 20, No. 9, November, 1938.
3. A Study of Crystalline Siliceous Minerals Present in Silicotic Lungs by the X-ray Diffraction Method. by C. M. Jephcott, W. M. Gray and Dudley A. Irwin. The Canadian Medical Association Journal, Vol. 38, pages 209-215, 1938.
4. Tuberculosis in Industry, presented by Dr. A. R. Riddell at the Wayne County Medical Society, Detroit, Michigan.
5. Silicosis and Its Relation to Other Fibrosing Lung Conditions, presented by Dr. A. R. Riddell at the Academy of Medicine, Toronto.
6. Industrial Medical Surveys by Dr. J. G. Cunningham, at the Occupational Disease Symposium, Northwestern Medical School, Department of Industrial Medicine, Chicago, Illinois.
7. Objectives of Industrial Hygiene, by Dr. F. M. R. Bulmer, Canadian Public Health Association Journal, July, 1938, pages 345-353.

Sanitary Inspection and Medical Care in Unorganized Territory.

The report of the Chief Sanitary Inspector is attached. The amendments to the regulations, effective August 18, 1938, are directed primarily to improved medical care of workmen under medical contract, by strengthening the position of the physician and increasing his responsibilities; to coverage for workmen employed in unorganized territory but living elsewhere; to limitation of employer liability in cases of non-industrial accidents, largely due to automobiles; and to more responsibility but greater latitude in conforming to the regulations in respect to sanitary camp construction and maintenance. Operators and contract physicians met with representatives of the Departments of Health and of Lands and Forests on separate occasions in the Thunder Bay area for consideration of the problems which the regulations are intended to cover. These meetings are to be extended to other districts. The conditions governing the development of medical services in camps with more than five hundred men have been set out.

There were no cases of smallpox. Of nine cases of typhoid fever, five occurred at one point from causes within the control of the company, while the remainder were individual cases widely separated with no secondary cases. All were due to contaminated water supply. The number of cases is small compared with earlier years but sufficient to emphasize to employers and employees the importance of sanitation.

The number of cases of dysentery is an added reason for more care. These cases are widely distributed and the subject of special enquiry at present. Most employers now recognize the value of health measures but they do not always delegate someone to be responsible for getting results.

SANITARY INSPECTION

D. MCKEE, *Chief Sanitary Inspector*

The following report is submitted for your approval covering the work carried out by your staff of six Provincial Sanitary Inspectors during the year 1938, including data relating to industrial camp hygiene.

The primary duty of the inspectors is the enforcement of the Public Health Act and regulations made thereunder, particularly respecting industrial camps, works and premises, employers and workmen thereof in territorial districts without municipal organization. These districts comprise practically three-quarters of the area of the Province of Ontario.

In 1938 it was again found necessary to make some minor changes in the judicial districts of the inspectors. This was in part due to the closing of the Sudbury office in 1937 and the opening of a new office at Geraldton the same year, combined with the increased mining and other industrial activities in the latter area. Consideration was also given to the question of accessibility and available transportation to all points in both districts.

The sanitation of industrial camps under Departmental regulations enforced by the Provincial Sanitary Inspectors is very important, due to the fact that workmen employed in remote areas are more or less compelled to live in temporary shelters under conditions which are not of their own choosing, and in some instances those who conduct the camps are apt to provide a meager outfit and to manage it in a careless manner through economic considerations, lack of knowledge, indifference to good sanitation, or short duration of the

camps. In other cases the employer or his workmen may be careless in sanitation through the apparent freedom from civilized society or city life conveniences.

After conferences with representatives of the three main industries concerned, lumber, mining and pulp and paper, the regulations respecting industrial camps were revised and approved by Order-in-Council, August 18, 1938. From reports from the inspectors, also from employers and workmen, it would seem that the revised regulations clarify a number of questions which had been raised under those previously in effect. An important change makes provision for employers, who usually employ more than 500 workmen in the same area, to establish a full time medical service at the camps, all such arrangements being subject to the approval of the Minister of Health. Under the present regulations, provision is made to exempt the employer of liability for payment for treatment in a sanatorium for tuberculosis patients. Provision is also made for the separate accounting of all sums deducted from wages of workmen for medical and surgical care of such workmen. A standard camp is now defined in the regulations as consisting of fifteen or more workmen, exclusive of one foreman and one clerk, which has increased the number of operators coming under the regulations, particularly in the Nipissing and Parry Sound districts.

The card index system of records was also revised and a more uniform system established in the district inspectors' offices, which should correspond with the central office. This will assist considerably in the keeping of records relative to industrial camps, employers of labour and the contract physicians' records, with the minimum amount of office work for the inspector.

The following summary shows the various industries in Northern Ontario throughout the year giving the average number of men employed and duration of employment. It will be noted from these figures that the actual number of workmen who found employment in industrial camps in 1938 compared favourably with 1937, when 41,332 were employed.

INDUSTRY	No. Of Operations	No. of Camps	No. of Men Employed	Average Duration
Lumber and Pulpwood.....	99	385	21,832	6 mos.
Saw Mill.....	31	34	1,884	5 mos.
Mining.....	84	84	9,537	12 mos.
Construction.....	44	64	5,747	6 mos.
Railway Extra Gang and S. S. Camps.....	4	30	1,500	5 mos.
Creosoting.....	1	1	50	2 mos.
Total.....	263	598	40,550	

Lumber and Pulpwood Operations.

During the year there were 99 operators, 385 logging camps employing 21,832 workmen. While the number of camps is approximately the same as last year, the actual number of workmen engaged in logging operations is 6,316 less.

Two new pulpwood plants were under construction during the summer months—(1) Lake Sulphite Pulp Co. plant located at Red Rock, township of Nipigon, where approximately 1,500 workmen were engaged on this work as well as a large number in the pulpwood cutting camps, which were later abandoned. (2) The Ontario Paper Co., Heron Bay, on C. P. R., carried to completion the construction of a large barking mill, also a small townsite for their employees. This work provided employment to 400 workmen during the

spring and summer months. This plant will give employment to 125 workmen at the mill camp during the summer, and between 400 to 500 in the woods camps during the winter for a number of years.

Mining Camps.

Eighty-four mining camps were operating, employing 9,537 workmen for a period of twelve months. These included camps in unorganized territory which came under the regulations of the Department. Owing to the nature of this industry and its permanent location, combined with the co-operation of the mining officials in charge with the staff of Provincial Sanitary Inspectors, these camps are usually constructed with due regard to modern sanitary conditions and the protection of the health of the workmen to be housed therein.

The question of disposal of mine tailings and slimes, etc., from the mines has been investigated by the inspectors during the year. Where the system of disposal has given grounds for complaint, a system of settling out the solids before entering the lakes or other water supplies has reduced any serious hazard and also the objectionable discolouration of the water on the shore-line.

During the early part of the year one company physician reported 18 non-fatal cases of arsenic poisoning among a group of workmen employed in one of the mills. The condition was drawn to the attention of the Department and was investigated by Dr. F. M. R. Bulmer, Divisional Research Specialist, the following day. The results of this investigation were very conclusive, and recommendations to remove the apparent cause were put into effect by the employers immediately.

Three new mining fields are now under development. The Sachigo River Gold Mine in Sachigo River area is located approximately 300 miles north of Sioux Lookout, or 110 miles directly east of God's Lake, Manitoba. Berens River Mine is under development in the Red Lake area, 119 miles north of Kenora. The latest mining field discovered during the latter part of the year is the Opipisway Lake district, 105 miles west of Sudbury. In this area approximately 300 workmen are employed by the different mining companies in prospecting, diamond drilling, and development work.

Construction Operations.

Construction operations provided employment to 5,747 workmen for an average of nine months in Highway, Hydro and other construction camps during the year. In this group, which is now carrying on operations during winter and summer months several sporadic cases of typhoid fever developed, which were traced to the source of drinking water supply.

Industrial Contract Physicians.

There is a total of 186 active medical and sanitation contracts divided among 40 physicians who employ 44 assistant physicians either on a part or full-time basis throughout the year.

It will be noted from the summary of industrial camps that 40,550 men were employed. In this group of workmen the following medical service was rendered by the contract physicians as reported to the Department in their monthly reports:

Inspection Reports Received	No. Men Treated	Immunizations	Physical Examinations
2,220	16,585	2,986	3,945

It may be noted that the statistical showing of the number of men treated does not represent the total number of treatments by the physicians. The improvement in type of medical service and the number of visits by the contract physician, particularly to the logging camps, are much appreciated by the workmen.

The revised regulations have made provision requiring that the contract physician cause a notice to be posted in a camp a reasonable time in advance of his visit. This has proved more satisfactory to the workmen giving them a better opportunity to consult the doctor for minor ailments.

Communicable Diseases.

The case record of communicable diseases as reported by the industrial contract physicians is higher than last year. This is evidently due to the fact that better records on communicable diseases are now submitted by the contract physicians.

The following is a summary of contagious diseases as reported by the contract physicians.

Measles.....	22
Chickenpox.....	4
Pneumonia.....	26
Impetigo.....	23
Tuberculosis.....	6
Syphilis.....	16
Influenza.....	507
Scarlet Fever.....	2
Dysentery.....	355
Septic Sore Throat.....	29
Gonorrhoea.....	32
Conjunctivitis.....	37
Mumps.....	2
Typhoid Fever.....	9
Ringworm.....	1
Diphtheria.....	1
Trench Mouth.....	1
Herpes Zoster.....	5
Scabies.....	9
Poliomyelitis.....	1
DEATHS:	
Septicaemia.....	1
Injury.....	1
Heart.....	3
Drowning.....	2
Killed.....	2

It will be noted that there were nine cases of typhoid fever. Five of these developed in some road construction camps in the Temagami area. Investigation revealed the company officials disconnected the chlorinated T. & N. O. safe water supply, using instead a temporary pumping system from a contaminated lake water supply in a bay in Temagami Lake. This change was made without the consent of the contract physician or inspector. Three other sporadic cases developed at different points and were traced to their source.

In view of the frequency of respiratory diseases, a definite effort has been made to eliminate as far as possible close contact with fellow-workmen in sleeping and living quarters.

During the year the inspectors were called upon to assist the family physicians in unorganized territory in the investigation and enforcement of quarantine of 233 cases of contagious disease.

Inspection of Towns and Villages, etc.

Sanitary surveys, inspections and investigations were made during the summer months of towns, villages, schools and tourist resorts. These inspections include dairies, water supplies and all duties of the sanitary inspector under the Public Health Act.

The sanitary supervision of the towns and villages has entailed much return follow-up inspection work due to the fact that there is no local authority or health board to follow up your inspector's instructions. The consensus of opinion in this regard seems to be that consideration might be given to a provision under the Public Health Act for the appointment or election of a sanitary board which would have power to assess and collect money for local sanitary improvements, such as establishing a scavenger system, public water supplies, etc., and would work in co-operation with the Provincial Sanitary Inspectors.

It is recommended that amendments be made to the Public Health Act to make provision for the election or appointment of a local sanitary board in unorganized towns and villages with a population of 500 persons or over.

CANCER CONTROL

The Ontario Government supplies seven cancer clinics across Southern Ontario with radium and radium emanation and makes grants for stated periods to the hospitals in which they are located, now totalling \$86,000 a year. This is the first year for these grants to the clinics outside the university centres so that the details for improvements which the funds make possible, have been worked out and applied. There is provision for a supervisory committee for public relations and a medical committee for consultation on technical matters. All the clinics are well-equipped for the application of treatment measures and for accurately recording the data so necessary for statistical research later. The details of cases treated by these clinics are contained in the attached report of Dr. A. H. Sellers, Medical statistician. There have been about 2,100 new cases of cancer a year, treated at the clinics. There is an unknown number of cases of cancer which do not reach the clinics for either diagnosis or treatment.

The cancer study groups in hospitals with over one hundred beds and the educational activities of the new Society for the Control of Cancer, sponsored by the Canadian Medical Association, should result in more cases reaching the clinics and that in the early stage when best results are obtained from treatment. It is important that municipalities send indigent cases as soon as the condition is recognized.

The radium plant has been operated to capacity primarily for the clinics, the remainder of its output being supplied to specified hospitals for indigent cases or to specified physicians for private cases, the latter at a rate of one dollar per millicurie. Provision has been made this year for duplicate parts of the emanation plant to avoid delay from breakdown due to the age of the plant. Protection from stray radiation for the plant operator has been increased following additional tests. The operation of this plant is now conducted by a part-time physicist.

The full-time physicists in addition to their work on dust control have conducted measurements of X-ray output for the clinics and audited the supplies of radium. No Government radium was lost but a small amount of hospital radium was recovered in an incinerator using equipment developed in the Department. The physical problems with deep therapy X-ray and radium

treatment have demanded more time especially with the new 400 K. V. X-ray machine at the Toronto General Hospital. A good deal of this is night work. For routine control and physical research, it is very desirable that physicists should be constantly available at larger clinics.

THE THIRD ANNUAL STATISTICAL REPORT ON CANCER* CALENDAR YEAR 1938

Comprehensive statistics on patients admitted to the seven Ontario Cancer Centres have become available for the first time this year. This significant development in the Department's cancer program has been made possible by the new record scheme devised by the Division of Medical Statistics and introduced into the seven Centres in August, 1937, through the co-operation of the clinic Directors. This plan provides for the maintaining of a complete history, examination and treatment record for every patient, in a uniform prescribed form. In addition, a follow-up card containing the essential clinical data including status on admission, stage of disease, treatment and after-history, is kept for each patient. All the facts necessary for a satisfactory annual review and appraisal of the work of each clinic and of the efficacy of treatment are therefore available. Each patient is to be followed annually for a period of at least five years or until death and the follow-up cards of all patients admitted to the Centres from January 1, 1938, up to December 31st, of the year just preceding are to be submitted to the Department on or before February 15th, each year.

In February, 1939, the cards of all new patients admitted to each clinic during the year ending December 31, 1938, were submitted to the Department. This was the first occasion of this practice and all cards were reviewed so that attention could be directed to any errors in their use. From the cards submitted, an annual report for each Centre was compiled, making it unnecessary to require each Centre to prepare and submit its own report as heretofore. This centralization of tabulation places a heavy burden on the statistical office but extends the opportunities for research. A series of summary tables will be forwarded to each clinic annually based on the review conducted.

It is confidently expected that a real contribution can be made toward clinical cancer research through the work now in progress and that material assistance can be rendered in many of the administrative, clinical and educational problems in cancer control. The full success of present objectives in the Department's program require, of course, the continuance in the future of the intimate co-operation given by the Director of each Centre in the past. Naturally many difficulties have been encountered during the transition period following the introduction of the new record scheme and certain problems still remain to be solved. The co-operation of the clinic Directors in making possible the developments during the year and in particular the statistical report which follows, is acknowledged.

A conference of the clinic Directors was held in November, 1938, to discuss experience with the new record forms, and a revision of the history and examination schedules was approved, modifying the arrangement without impairing the value of the record for statistical purposes. This revision will be undertaken early in 1939. The remainder of the schedules and follow-up cards were approved in their original form.

* Prepared by the Division of Medical Statistics, Ontario Department of Health.

From the information now available to the Department through the follow-up cards, several important contributions to available knowledge are possible. Stages of disease at the beginning of treatment, nature of any previous treatment, delay in seeking treatment, etc., are facts which are important both in reference to administrative problems and in cancer research. In the statistical report appended, the principal points of interest regarding new cases admitted to the seven Centres during 1938 are presented.

Departmental Objectives—

The Department, together with the Directors of the seven cancer centres are in agreement that an accurate, complete record of each patient, including follow-up, is essential not only in the best interests of the patients, but because such data is a contribution to the advancement of our knowledge of cancer, its treatment and control. As a further extension of these interests, an effort will be made to secure records of *all* patients admitted to the Centres *whether treated or not*, in order to determine the frequency of and the reasons for non-treatment.

The securing of records for *all* patients who seek advice at the hospitals where the Centres are located, regardless of whether treated by radiotherapy or not, is desirable. This requires the maintenance of a cancer registry in the hospital housing each Centre, which would be responsible for the records of all patients applying for treatment. Such a registry would be best located in the Centre itself. If such a plan could be achieved, it would make available for study a comprehensive body of data on cancer of *all* sites.

Knowledge of the frequency of cancer is a fundamental step toward control. To this end a review of all patients treated for cancer and other tumours in public hospitals in Ontario 1937, was begun during 1938 by the Division of Medical Statistics. All patients discharged from or dying in these hospitals during that year are to be included. The data available are diagnosis, age, sex, place of residence, length of stay in hospital, type of patient (public, private), etc. When completed, this review will add materially to our knowledge of the extent of the cancer problem in Ontario. At the end of 1938 transcripts from the monthly hospital returns to the Department for the first nine months of 1937 had been completed.

Data is also needed as to the extent to which all patients with cancer are now receiving treatment. A study of all deaths of which cancer was either the cause or an important contributing factor, over a period of one year, would be of material assistance in this connection.

REPORT UPON THE WORK OF THE CANCER CENTRES DURING 1938

The following report upon the work of the cancer Centres during 1938, deals with *new patients* admitted during the year. The tabulations throughout were made in the Office of the Departmental Medical Statistician from data on the follow-up cards submitted by the seven Centres under the new record arrangement.

Table I gives a summary of the case volume during 1938.

TABLE I
NEW CASES ADMITTED BY CENTRE
CALENDAR YEAR, 1938

CENTRE	NEW CANCER CASES						Non-Cancer Cases(2)	Total New Patients Treated
	On Record			Treated (1)				
	Private	Public	Total	Private	Public	Total		
Hamilton.....	233	69	302	233	69	302	309	611
Kingston.....	137	49	186	137	49	186	218	404
London.....	80	75	155	80	66	146	103	249
Ottawa (C)..	177	104	281	166	87	253	243	496
Ottawa (G)..	63	50	113	55	42	97	45	142
Toronto.....	498	477	1,017(3)	498	477	985(4)	525	1,500
Windsor.....	109	41	150	103	33	136	137	273
Total....	1,297	865	2,204(3)	1,272	823	2,105(4)	1,580	3,685

- (1) Treated by any method or combination. Includes cases treated by surgery alone but excludes palliative surgery.
- (2) Non-malignant tumours and non-neoplastic diseases.
- (3) Including 42 cases not treated which are not included in "private" and "public" columns.
- (4) Includes surgical cases as follows: breast (2), oral (1), rectum (1), other sites (6) which are not included in "private" and "public" totals.

A total of 2,204 new cancer patients presented themselves for treatment during the year. All but 99 of these received some form of treatment. In addition, 1,580 patients were treated for benign tumours or non-tumour conditions. The number of private cases exceeded that of public in each Centre, public cases constituting 40 per cent. of the total new cancer cases treated during the year.

A comparison of the volume of cancer cases *treated* in each Centre for the three years, 1936 to 1938, is given in table II.

TABLE II
NEW CANCER CASES TREATED BY RADIOTHERAPY *
1936, 1937 AND 1938

CENTRE	Private			Public			Total		
	1936	1937	1938	1936	1937	1938	1936	1937	1938
Hamilton.....	173	189	233	61	77	69	234	266	302
Kingston.....	131	153	135	114	45	48	245	198	183
London.....	40	72	80	45	55	64	85	127	144
Ottawa (C)...	163	148	159	90	85	81	253	233	240
Ottawa (G)...	32	30	44	36	34	40	68	64	84
Toronto.....	531	505	498	428	470	477	959	975	975
Windsor.....	101	108	99	41	28	31	142	136	130
Total.....	1,171	1,205	1,248	815	794	810	1,986	1,999	2,058

*Alone or in combination with surgery or other methods. Cases treated by surgery alone and cases not treated are excluded.

The total increase in cancer patients treated over the previous year is 3 per cent. Significant increases are noted for Hamilton (17 per cent.), London (13 per cent.) and Ottawa (General) (31 per cent.). Slight decreases are noted for Kingston and Windsor. It is somewhat surprising that there has not been a more marked increase over the past three years. Later observations have some significance in this connection.

A composite summary of new cases by site is given in table III, indicating the number alive as at December 31st, 1938.

TABLE III
NEW CANCER CASES ADMITTED BY SITE OF DISEASE
ONTARIO CANCER CENTRES—1938

SITE OF CANCER	Number of Patients			Per Cent. Total†
	Alive	Dead*	Total†	
Breast.....	364	44	414	18.8
Cervix Uteri.....	166	35	201	9.1
Body of Uterus.....	48	14	62	2.8
Lip.....	202	9	213	9.7
Tongue.....	35	12	48	2.2
Other Oral ‡.....	80	13	95	4.3
Upper Air Passages.....	33	6	42	1.8
Rectum and Anus.....	47	12	62	2.8
Skin.....	539	13	556	25.2
Other Sites**	359	131	511	23.3
TOTAL CASES.....	1 873	289	2,204	100.0

*As at December 31, 1938.

†Including the Not Treated cases at Toronto Clinic.

‡Including tonsil.

**Comprising vagina, ovary, bone, other digestive tract, leukaemia, Hodgkin's disease, etc.

This table indicates that 72.1 per cent. of the cases presenting themselves for treatment had cancer of those sites particularly amenable to radiotherapeutic treatment (breast, uterus, oral cavity and skin). Based on available data on natural duration, the estimated number of patients with cancer of the breast needing treatment during 1938 would be in excess of 1,400 compared with 414 cases admitted to the clinics or 29.6 per cent. of the estimated number. Similarly, the estimated number of uterus cases probably exceeds 600 while 263 or 43.8 per cent. of this number, were admitted.

Among males, "accessible" cancers (breast, oral cavity and skin) were responsible for 8.7 per cent. of the deaths in 1937 and 66.7 per cent. of the new cases admitted. Among females "accessible" cancers (breast, uterus, oral cavity and skin) were credited with 37.4 per cent. of the cancer deaths during 1937 and 76.8 per cent. of the new cases during 1938 were in this group.

New Cases Treated by Site and Centre of Treatment—

A summary of the new cases treated during 1938 by site of disease and clinic is given in table IV.

TABLE IV
NEW CANCER CASES TREATED BY SITE
ONTARIO CANCER CENTRES—1938

SITE OF CANCER	Hamil- ton	Kings- ston	London	Ottawa (C)	Ottawa (G)	Toronto	Wind- sor	ALL CENTRES
Breast.....	60	42	18	41	18	199	23	401
Cervix Uteri.....	31	16	12	16	7	96	23	201
Corpus Uteri.....	15	2	2	7	0	32	4	62
Lip.....	20	26	16	30	14	94	11	211
Tongue.....	5	2	2	5	4	26	2	46
Other Oral*.....	2	3	7	10	1	61	5	89
Air Passages†.....	4	6	3	2	1	19	3	38
Rectum and Anus.....	16	4	3	4	4	13	7	51
Skin.....	84	57	50	75	18	240	25	549
Ovary.....	6	5	4	5	2	28	2	52
Other Sites‡.....	59	23	29	58	28	167	31	395
TOTALS	302	186	146	253	97	985**	136	2,105**

*Includes tonsil, buccal surface of cheek, etc.

†Includes air sinuses, larynx, pharynx and nasal fossae.

‡Includes bone, vagina, other digestive tract, etc.

**Includes 10 cases treated by surgery, not included above.

Of the total new *treated* cases, the breast contributed 19 per cent., the uterus 13 per cent., the buccal cavity 16 per cent. and skin 26 per cent. or a total for these four groups of 75 per cent. Variations in this distribution are noted between the seven Centres. In 1937, cancer of the breast contributed 464 deaths or 10.2 per cent. of all cancer deaths, the uterus 356 deaths or 7.8 per cent., the oral cavity 166 deaths or 3.6 per cent. and the skin 89 deaths or 2.0 per cent.—a total of 23.6 per cent. Increases in the number of breast, uterus and oral cavity cases over the previous year is gratifying.

Stage of Disease at the Beginning of Treatment—

An important factor in a successful outcome of treatment is the stage of disease at which the patient first presents himself. This year data were collected from each Centre on stages of disease among patients treated, from the date of inauguration of each Centre to the end of 1937. These data are compared in table V with those from the follow-up cards of 1938 cases.

TABLE V
NEW CANCER CASES APPLYING FOR TREATMENT
CERTAIN SITES—BY STAGE OF DISEASE ON ADMISSION
ONTARIO CANCER CENTRES—1934-38

SITE OF CANCER	Stage of Disease	1934		1935		1936		1937		1938		1934-38	
		Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent
Breast.....	I	21	21.6	50	25.4	53	26.1	71	34.5	76	32.3	271	28.9
	II	37	38.1	75	38.1	78	38.4	77	37.4	105	44.7	372	39.7
	III	39	40.2	72	36.5	72	35.5	58	28.2	54	23.0	295	31.4
	Total	97	100.0	197	100.0	203	100.0	206	100.0	235	100.0	938	100.0
Cervix Uteri.....	I	27	20.9	19	11.5	18	11.8	30	16.5	27	14.7	121	14.9
	II	51	39.5	56	33.9	55	35.9	56	30.8	53	28.8	271	33.3
	III	34	26.4	68	41.2	62	40.5	68	37.4	84	45.7	316	38.9
	IV	17	13.2	22	13.3	18	11.8	28	15.4	20	10.9	105	12.9
	Total	129	100.0	165	100.0	153	100.0	182	100.0	184	100.0	813	100.0
Lip.....	I	129	75.9	131	79.9	120	68.2	127	72.6	149	74.9	656	74.2
	II	27	15.9	27	16.5	47	26.7	38	21.7	38	19.1	177	20.0
	III	9	5.3	3	1.8	7	4.0	10	5.7	10	5.0	39	4.4
	IV	5	2.9	3	1.8	2	1.1	0	.....	2	1.0	12	1.4
	Total	170	100.0	164	100.0	176	100.0	175	100.0	199	100.0	884	100.0

TABLE V—Continued
NEW CANCER CASES APPLYING FOR TREATMENT
CERTAIN SITES—BY STAGE OF DISEASE ON ADMISSION
ONTARIO CANCER CENTRES—1934-38

SITE OF CANCER	Stage of Disease	1934		1935		1936		1937		1938		1934-38	
		Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent.
Tongue.....	I	7	23.3	10	34.5	4	12.9	8	21.6	10	23.3	39	22.9
	II	13	43.3	6	20.7	14	45.2	9	24.3	18	41.9	60	35.3
	III	7	23.3	10	34.5	11	35.5	19	51.4	6	14.0	53	31.2
	IV	3	10.0	3	10.3	2	6.5	1	2.7	9	20.9	18	10.6
	Total	30	100.0	29	100.0	31	100.0	37	100.0	43	100.0	170	100.0
Other Oral.....	I	7	13.7	11	17.2	11	16.2	13	18.1	17	23.6	59	18.0
	II	23	45.1	33	51.6	37	54.4	41	56.9	25	34.7	159	48.6
	III	13	25.5	14	21.9	14	20.6	16	22.2	21	29.2	78	23.9
	IV	8	15.7	6	9.4	6	8.8	2	2.8	9	12.5	31	9.5
	Total	51	100.0	64	100.0	68	100.0	72	100.0	72	100.0	327	100.0
Skin.....	I	314	83.1	402	90.3	368	79.1	422	80.5	437	87.4	1,943	84.0
	II	47	12.4	32	7.2	80	17.2	75	14.3	53	10.6	287	12.4
	III	13	3.4	9	2.0	11	2.4	20	3.8	8	1.6	61	2.6
	IV	4	1.1	2	.4	6	1.3	7	1.3	2	.4	21	0.9
	Total	378	100.0	445	100.0	465	100.0	524	100.0	500	100.0	2,312	100.0

NOTE:—Data cover: all clinics for years 1935-1938, Toronto, Hamilton, Kingston and Ottawa Civic for 1934.

In breast cases some encouragement may be taken from the progressive increase in cases presenting themselves for treatment while the disease is still localized in the breast (stage I). For this site, the percentage of stage I cases has increased from 21.6 in 1934 to 32.3 in 1938. For cases of cancer of the cervix uteri, oral cavity and skin—no such encouraging sign is evident. In all groups the high proportion of moderately advanced or advanced cases is striking.

Only 76 or 32 per cent. of new breast cases during 1938 were recorded as stage I, while 23 per cent. were in stage III on admission. Of 184 new cases of cancer of the cervix uteri, only 27 or but 15 per cent. were stage I, while over 56 per cent. were in stages III and IV. Excluding skin cases (of which over 87 per cent. were stage I) only 31 per cent. of the patients presented themselves for treatment before local spread, extension or metastasis had occurred.

The figures presented in table V are not reassuring. In 1937, 34.3 per cent. (815 deaths) of the total cancer deaths among women in Ontario were attributed to cancer of breast and uterus. Material reduction of the female cancer death rate is to be expected if earlier treatment can be brought about. The facts presented are not new but they should serve to renew and strengthen the efforts of those concerned with active public and professional education.

Among the new cases during 1938, marked differences were found in the stage distribution of private and public cases. For instance, only 9 per cent. of the new public cases of cancer of the cervix uteri presented themselves for treatment before local spread or metastasis had occurred, compared with 25 per cent. in the private group. For cancer of the oral cavity the figures were—public 40 per cent. and private 68 per cent., and for breast cases—public 25 per cent. and private 35 per cent. The known marked differences in survival rates between early and late cases demand careful exploration and application of these findings.

Classification of New Cases Admitted During 1938—

A general summary of the new cancer cases admitted during 1938 is given in table VI. The designations used are “primary”, “previous” and “recurrent.” These are defined as follows:—

Primary—Cases admitted for treatment of the primary growth (which is still present at the time admitted, regardless of any treatment by radiotherapy or other means, before reaching the clinic).

Previous—Cases admitted for complementary treatment after the original growth has been removed by operation or by other procedure, elsewhere.

Recurrent—Cases admitted with a growth either at the original site or in the form of an extension or metastasis, who have received treatment previously elsewhere and been considered free from disease.

It should be noted that these data refer to *new* cases only and therefore do not indicate the frequency of recurrences among “primary” or “previous” cases treated at the clinics in earlier years.

TABLE VI
CLASSIFICATION OF NEW CASES ADMITTED DURING 1938
ONTARIO CANCER CENTRES

SITE OF CANCER	Classification				TOTAL
	Primary	Previous	Recurrent	Not Treated*	
Breast.....	118	217	66	7	408
Cervix Uteri.....	184	6	11	0	201
Corpus Uteri.....	37	18	7	0	62
Oral Cavity.....	327	3	16	5	351
Air Passages.....	36	1	1	1	39
Rectum and Anus.....	44	2	5	8	59
Skin.....	491	28	30	3	552
Other Sites.....	345	79	23	43	490
Total.....	1,582	354	159	67	2,162
Per Cent.....	73.2	16.4	7.3	3.1*	100.0

*Excluding not treated cases at Toronto Clinic.

The total number of cases admitted with recurrences was 159 (excluding 7 untreated, at Toronto Clinic). This is 7.3 per cent. of all cases. Recurrent cases were most prominent in the breast, there being 66 such cases or 16 per cent. of all breast cases admitted. At a later date and for presentation in a subsequent report, an examination will be made of the nature of previous treatment received elsewhere by patients in the “previous” and “recurrent” categories, before reaching the clinics.

Histological Confirmation of Clinical Diagnosis—

For 1,501 of 2,204 new patients, a pathological report was available. Table VII gives the frequency of histological examination by site of disease.

TABLE VII
HISTOLOGICAL EXAMINATION IN NEW CANCER CASES
ONTARIO CANCER CASES—1938

SITE OF CANCER	Pathol. Done		No Path. Exam.		No Data		TOTAL*	
	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.
Breast.....	169	100	34	13	63	29	266	142
Cervix Uteri.....	64	119	1	9	5	3	70	131
Body of Uterus.....	26	25	3	4	3	1	32	30
Oral Groups.....	147	129	41	19	9	6	197	154
Air Passages.....	15	14	3	2	3	2	21	18
Rectum and Anus.....	15	18	13	5	5	3	33	26
Other Sites.....	415	245	198	76	65	43	678	364
Total Cancer.....	851	650	293	128	153	87	1,297	865
Per Cent.....	65.6	75.1	22.6	14.8	11.8	10.1	100.0	100.0

*These figures exclude not treated cases in Toronto Clinic as follows: Breast 6, Oral Group 5, Air Passages 3, Rectum and Anus 3, Other Sites 25.

In two-thirds of all private cases and in three-quarters of public cases a tissue examination was done. Histological confirmation was most frequent in cervix uteri cases (91 per cent.). For all sites the percentage was 69.4. In oral and breast cases, the percentage of cases confirmed histologically was much higher than in the data reported by the National Radium Commission (65.9 and 78.6 compared with 33.4 and 45.0). In skin cases the frequency of biopsy was lowest, being 48 per cent, in private cases (230 out of 477) and 41 per cent. in public cases (89 out of 217).

A review of the figures on histological examination in breast, uterus, oral, air passages and rectum cases only, for each Centre, indicated quite wide variations in the frequency of biopsies, from clinic to clinic. The precentage of cases in which such examination was conducted was as follows—Hamilton, 64 per cent.; Kingston, 56 per cent.; London, 81 per cent.; Ottawa (Civic), 85 per cent.; Ottawa (General), 61 per cent; Toronto, 79 per cent., and Windsor, 83 per cent.

Method of Treatment—

Data on the follow-up cards for 1938 indicated the treatment each new patient was given *during the year*. From these data the general groupings of treatment are given in table VIIIa.

TABLE VIIIa

METHOD OF TREATMENT OF NEW CASES DURING 1938

(Recurrences Excluded)

TREATMENT	SITE OF DISEASE								TOTAL	
	Breast	Cervix Uteri	Corpus Uteri	Oral Cavity	Air Pas-sages	Rec-tum	Skin	Other Sites	No.	Per Cent.
X-Ray.....	50	30	12	32	21	17	105	221	488	24.4
Radium.....	3	16	11	189	7	5	345	19	195	29.7
Radium & X-Ray.	14	126	10	87	5	4	32	26	304	15.2
Surgery & X-Ray..	245	9	12	2	1	12	4	123	408	20.4
Surgery & Radium.	0	1	3	16	1	0	30	7	58	2.9
Surg., Rad., X-Ray	17	8	6	3	2	2	0	7	45	2.2
Not Treated*.....	7	0	0	5	1	8	3	43	67	3.3
Surgery Alone.....	6	0	1	1	0	6	3	21	38	1.9
Total.....	342	190	55	335	38	54	522	467	2,003	100.0

* Excluding Toronto Cases.

Of all treated cases (recurrences excluded) 595 patients out of 1,936 were treated by radium alone. This is 30.7 per cent. a figure markedly influenced by inclusion of the skin cancers of which two-thirds were treated by radium alone. Radium alone or with X-ray, surgery or both, was used in 1,002 or 51.7 per cent. of new cases (recurrences excluded). The distribution by site can be readily ascertained from the table.

Data on methods of treatment by clinic are given in table VIIIb.

TABLE VIIIb
METHOD OF TREATMENT OF CANCER CASES BY CENTRE—1938
(Recurrences Excluded)

TREATMENT	Hamil- ton	King- ston	Lon- don	Ottawa(C)	Ottawa(G)	Toron- to	Wind- sor	ALL CENTRES	
								Cases	Per Cent.
X-Ray.....	159	38	29	40	32	155	35	488	25.2
Radium.....	22	67	59	79	8	350	10	595	30.7
Radium & X-Ray.....	31	16	10	58	17	123	49	304	15.7
Surgery & X-Ray.....	77	47	26	47	16	182	13	408	21.1
Surgery & Radium.....	3	7	5	3	0	38	2	58	3.0
Surg., Rad., & X-Ray.	3	0	1	1	2	29	9	45	2.3
Surgery Alone.....	0	3	2	14	13	0	6	38	2.0
Total Treated Cases.	295	178	132	242	88	877	124	1,936	100.0

These data show marked variations from clinic to clinic in the number of patients in whom radium was used, either alone or in combination with other methods of treatment. In Hamilton, radium was used in only 59 cases or 20 per cent. of patients, at the Ottawa General in only 27 or 31 per cent. In the other Centres the proportions were 51, 57, 58, 67 and 56 per cent. respectively at Kingston, London, Ottawa (Civic), Toronto and Windsor. Differences in case distribution alone do not fully account for those variations.

Cases Not Treated—From five Centres, cards were submitted for patients who had presented themselves for treatment, but who were not treated. Of a total of 99 such patients, 11 were breast cases, 10 oral cavity, 4 upper air passages, and 10 rectum. There were no uterus cases in the group. Among the reasons recorded for non-treatment were—too advanced (60), refused treatment (17), failed to return (6), died before treatment (6) and age or complicating disease (4).

Arrangements are being made for the collection of more complete data in future years. At the moment, interest centres especially on the 60 patients who were considered too advanced for treatment. This is about 3 per cent. of all cases admitted and adds further emphasis to previous findings as to the stage of disease when patients present themselves for treatment.

Age and Sex of New Patients Admitted During 1938—

The two sexes were approximately equally represented among the new cancer cases during 1938, with slight female excess. This female excess is marked at ages under 60 years, after which males predominate. Of the male cases, 37.5 per cent. were under 60 years and of the female cases 59.0 per cent. Table IX gives the age and sex distribution of the 2,204 new patients admitted during 1938 by site.

TABLE IX
TOTAL NEW CASES ADMITTED DURING 1938—BY AGE AND SEX
ONTARIO CANCER CENTRES

SITE OF CANCER	Under 40		40-49		50-59		60-69		70-79		80 and over		Not Stated		TOTAL	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Breast.....	1	43	3	90	2	131	1	76	1	46	0	6	0	14	8	406
Cervix Uteri.....	0	44	0	56	0	47	0	38	0	10	0	1	0	5	0	201
Body.....	0	5	0	8	0	19	0	21	0	4	0	2	0	3	0	62
Lip.....	12	0	18	0	43	1	61	1	52	2	18	3	2	0	206	7
Tongue.....	2	0	4	2	11	1	10	3	12	0	2	1	0	0	41	7
Other Oral.....	5	1	5	0	14	1	31	5	27	3	1	0	2	0	85	10
Upper Air Passages.....	1	0	10	4	10	1	7	3	4	2	0	0	0	0	32	10
Rectum and Anus	1	4	3	8	13	8	8	6	5	4	0	0	2	0	32	30
Skin.....	17	10	16	18	57	42	100	48	97	59	46	30	12	4	345	211
Other Sites.....	48	42	36	44	53	64	69	50	38	24	10	2	24	7	278	233
Total Cancer Cases.....	87	149	95	230	203	315	287	251	236	154	77	45	42	33	1,027	1,177
Per Cent. (by sex)	8.4	12.7	9.3	19.5	19.8	26.8	27.9	21.3	23.0	13.1	7.5	3.8	4.1	2.8	100.0	100.0
Ratio Males to Females.....	0.58		0.41		0.64		1.14		1.53		1.71		1.27		0.87	

The marked female excess in breast cancer and the similarly marked male excess in oral cancers are striking. These data should be compared with the mortality figures given in the second annual statistical report on cancer (See Thirteenth Annual Report of the Department, 1938, p. 160).

Hospitalization of Cancer Cases—

This year data on the hospitalization of cancer patients treated in the clinics were complete, except for private cases at Toronto. A summary of the new cancer patients hospitalized by site of disease is given in table X.

TABLE X.
HOSPITALIZATION OF NEW CASES DURING 1938
ONTARIO CANCER CENTRES

SITE	Private			Public			TOTAL	
	Pts.	Days	Av. Stay	Pts.	Days	Av. Stay	Pts.	Days
Breast.....	74	1,395	18.9	53	1,906	36.0	127	3,301
Cervix Uteri.....	35	416	11.9	84	3,786	45.1	119	4,202
Body of Uterus.....	14	308	22.0	15	581	38.7	29	889
Oral Cavity.....	28	291	10.4	51	1276	25.0	79	1,567
Air Passages.....	8	77	9.6	9	556	61.8	17	633
Rectum and Anus.....	23	913	39.7	15	973	64.9	38	1,886
Other Sites.....	142	2,815	19.8	132	6,148	46.6	274	8,963
ALL SITES.....	324	6,215	19.2	359	15,226	42.4	683	21,441

There is a strikingly greater average length of stay in hospital in the public over the private group, for each site. Of the new private cases treated, 25.4 per cent. were hospitalized and of the public cases 43.5 per cent. Gross averages for each Centre were found to vary markedly but these are of course influenced by the varying proportion of cases of different sites and stages.

Collective hospital days were translated into beds per year for each Centre, assuming a 75 per cent. occupancy of such beds. Exclusive of private patients at the Toronto clinic, the total collective days stay of all *new* cancer patients during 1938 was equivalent to 78 beds per year (Hamilton 7.3, Kingston 4.5, London 10.9, Ottawa Civic 21.9, Ottawa General 10.9, Toronto [public only] 16.8 and Windsor 6.1). This takes no account of old cases readmitted for further treatment or observation and these contribute significantly to the total hospital cancer days. Present legislation provides for 20 beds at Kingston and London and 50 at Toronto.

Professional Interest in the Clinic Service—

There are some 4,200 physicians in practice in Ontario. A review of the follow-up cards was made for the seven clinics to determine the number of different physicians who had referred cases for treatment. The findings are presented in table XI.

TABLE XI
REFERRING PHYSICIANS BY CENTRE
CALENDAR YEAR, 1938

CENTRE	New Cases on Record	No of Different Referring Physicians	Different Physicians Per New Case
Hamilton.....	302	133	0.44
Kingston.....	186	97	0.52
London.....	155	78	0.50
Ottawa (C)....	281	132	0.47
Ottawa (G)....	113	43	0.38
Toronto.....	1,017	520	0.51
Windsor.....	150	68	0.45
TOTAL.....	2,204	1,071	0.49

Thus 1,071 *different* physicians or 25 per cent. of the total number practising in Ontario referred one or more cases to the clinics during the year. This is a ratio of one referring physician for every two new cases admitted and is encouraging evidence of the wide public and professional interest in and recognition of the work being done by the Ontario cancer clinics.

Geographic Distribution of Clinic Patients—

In 1938, for the first time, it has been possible to determine the distribution of the new cancer patients admitted to the seven Centres, by area of residence. An examination of these data has shown that the case load is highest among the population in and about the county where a clinic is located. Thus, the case load per 100,000 population varied from 134 in Frontenac, 109 in Carleton, 109 in Wentworth, 80 in Essex and 66 in Middlesex to 19 in Brant, 37 in Bruce, 40 in Elgin, 40 in Glengarry, 45 in Grey, 32 in Kent, 22 in Lambton, 27 in Norfolk, 37 in Oxford, 34 in Peterborough, 37 in Prescott, 37 in Waterloo, and 31 in Welland. The case rate for the province as a whole was 58. York peculiarly enough has a case rate below that of the whole province—52 per 100,000 population. All these variations will be followed in future because of the significance which they have as an index of patients reaching the clinics from various areas. The cancer death rate also shows variations from county to county but bears no constant relation to the fluctuations in the case rate nor are they of as large an order. Despite the strategic location of the Centres, distance among other factors appear to be exerting a strong influence on the number of patients reaching the clinics for treatment. The low case load in counties lying between the clinic centres is evidence in support of this contention.

Non-Cancer Cases—

During 1938, a total of 1,580 new non-cancer cases were treated in the clinics. Of this number 722 were patients with benign tumours and 858 were patients with various non-neoplastic conditions. A summary of these cases is given in table XII.

TABLE XII
TOTAL NEW NON-CANCER CASES—1938

NON-MALIGNANT TUMOURS		NON-NEOPLASTIC DISEASES	
Diagnosis	No. of Pts.	Diagnosis	No. of Pts.
Angiomata.....	143	Asthma.....	13
Cysts (various).....	27	Actinomycosis.....	22
Fibromata.....	52	Cervicitis.....	19
Keloid.....	30	Fibrosis Uteri.....	8
Keratosi.....	121	Hyperthyroidism.....	28
Leukoplakia.....	32	Infections, n.s.e.*.....	209
Moles, naevi.....	39	Mastitis.....	31
Papillomata.....	37	Menorrhagia and	
Polypi.....	12	Metrorrhagia.....	201
Warts	183	Parotitis.....	33
Others.....	46	Pruritus.....	12
		Skin Diseases (various)	134
		Thymic enlargement....	50
		Others.....	98
Total.....	722	Total.....	858

*Including cervical adenitis, ulcers, chronic inflammation, etc.

The frequency of “precancerous” lesions such as keratosis and leukoplakia is of note, these two contributing 152 patients. An effort will be made in future to collect data on the after-history of these cases.

MEDICAL STATISTICS

A. HARDISTY SELLERS, B.A., M.D., D.P.H., *Medical Statistician*

ON THE ACTIVITIES OF THE DIVISION DURING THE YEAR.

During 1938, the activities of the Division of Medical Statistics were further extended. The major part of the time of the staff has been devoted to the three projects outlined in the 1937 report namely—a study of public hospital morbidity and costs, the development and study of cancer clinic records and routine and research analyses of Ontario Hospital statistics. In each of these three fields of interest, the programme was materially extended and the usefulness and activity of the Division substantially increased. The following statement indicates the highlights of the year's work.

I. CANCER CONTROL—(a) *Ontario Cancer Clinic Statistics.*

In August, 1937, a plan of uniform case recording and follow-up was introduced into the seven cancer centres. The Government investment for radium alone in these centres is \$400,000.00 and, in addition, annual grants amount to \$86,000.00. These centres are an important source of information on cancer and its treatment. The uniform record scheme which was designed by this Division in co-operation with the Directors of the seven centres, will go a long way toward making good use of the data which is being accumulated. The new records were submitted to a year of trial and at a special conference of Directors in November, 1938, were reviewed in detail. At this time the follow-up cards, one of which is completed for each new patient, were approved for future use. Plans were made, however, for a revision of the history and examination forms, which revision will be completed during 1939.

The Cancer Clinic Statistics presented elsewhere in this report (pages 179 to 193) were secured through the operation of the new record plan under which the follow-up cards of all patients are forwarded annually to the Department for review and analysis. The statistical investigations already made have contributed knowledge of an important administrative and clinical character. Information concerning the source of patients treated in the clinics, the duration and nature of symptoms, stage of disease at the time of admission, etc., is much needed and one year's operation of the uniform record scheme has clearly defined the effectiveness of the new plan.

In order to assist the Directors of the clinics in the various aspects of recording, at least two visits were made to each clinic during the year. In this way difficulties experienced with the new plan are reduced to a minimum. Indeed, considerable time has been devoted during the year to inspection and supervision. Preliminary steps were taken toward complete revision of the Memorandum on Cancer Recording issued in 1937. The new memorandum will be considerably extended in detail and will cover points shown by experience during 1938, to need certain clarification.

(b) *Cancer Mortality.*

During 1938, the detailed study of cancer mortality in Ontario during the last thirty years was continued and some of the essential findings have been incorporated in a recent publication. Some of these data are included in the

Third Statistical Report on Cancer elsewhere in this document. Considerable assistance in directing cancer programmes may be anticipated from such a statistical analysis of available data.

(c) *Cancer Morbidity.*

During 1938, an investigation was initiated covering all cancer patients discharged or dying of cancer in all public hospitals in Ontario during 1937. This review will by no means give a complete picture of cancer morbidity but it *will* indicate the extent to which cancer cases are hospitalized, the mortality in hospital, the areas from which patients come, the relative importance of various cancer sites among hospitalized cases, as well as the contribution which cancer makes to hospital costs. In this review non-malignant tumors have been included for purposes of comparison. Up to the end of 1938 the available data had been transcribed for some 4,000 patients and tabulation is expected to be completed during 1939.

II.—PUBLIC HOSPITALS—

The comprehensive study of general morbidity in public hospitals, which was begun in 1937, was continued throughout 1938. It was found necessary, however, to limit the scope of the study to patients discharged during the three month period ending December 31, 1936, and patients in residence on March 31st, 1937. This work consumed the greater part of the available time of the staff during the year. Both coding of data and punching of Hollerith cards were completed during the year. Thus 35,000 cases were coded and 45,000 cards were punched, completing the preparation of 65,000 cases for analysis. The items coded and punched for analysis include hospital, place of residence, date of admission, age, sex, ward accommodation, rate paid, days stay, diagnosis, outcome, and Government grant. On November 1st, sorting and tabulation of the cards was begun using a high speed sorter and an alphabetical tabulator. Mechanical tabulation will be completed sometime during February or March. The formal report on this investigation will be completed during 1939.

In addition to the study of hospital discharges, a review of available statistical information on public hospitals from 1900 to 1938, including bed accommodation, patients treated, days stay, income and expenditures, etc., was commenced. This further work was undertaken to complete the picture provided by the more laborious morbidity study. The object of this second study is to ascertain the present position in respect to hospitalization in the Province, and to determine where possible the presence of significant trends in relation to known variable factors such as extent of hospital facilities, economic and social changes, increase in population, etc.

III. MENTAL HOSPITALS—

During 1938, preparatory work was done for a revision of the annual report forms used by Ontario Hospitals, and from which this Division prepares the annual report for the Province. The monthly report schedules were revised during the year in the light of administrative needs. The revision of the annual report forms, however, is more difficult and significant since it will considerably enhance the scope of the statistical report. It is planned to introduce the new forms beginning with the year ending March 31, 1939. A review of the statistical cards used in reporting admissions, discharges, deaths, etc., has also been made and during 1939 each of the twelve cards will be revised, bringing them into line with newer practice and newer requirements in hospital recording.

On April 1, 1938, a new classification of mental disorders was introduced for use in Ontario Hospitals. The new classification is that approved by the Council of the American Psychiatric Association in 1934. This new nomenclature will be incorporated in the revised annual report schedules for the year ending March 31, 1939, and will as a result be introduced throughout Canada.

Several special studies were made during the year, dealing with patients admitted to Ontario Hospitals on a warrant of remand, accidents occurring in the institutions, etc. In this field of special study and research, plans are being made to introduce the publication of bi-monthly statistical bulletins dealing with various aspects of Ontario Hospital statistics. These publications will be prepared and issued as the ten-year study of statistical data which was begun during 1937, proceeds. The first bulletin will be issued in March, 1939.

IV. PNEUMONIA—

During 1938 a statistical study was made of pneumonia mortality in Ontario covering the fifteen-year period 1921-1936. This review dealt with the essential features of the pneumonia problem and served to emphasize the general nature and scope of it. In addition, a study was made of pneumonia cases hospitalized in the seven largest public hospitals in the province during the year ending September 30th, 1937. These seven centres treat 30 per cent. of all patients hospitalized in general hospitals during a year. The object was to inquire into the relative importance of pneumonia as a cause of sickness and hospitalization and to secure an estimate of the probable number of pneumonia cases requiring treatment annually. The total number of estimated cases was placed at about 11,000. A report upon this work was presented at the twenty-fourth annual meeting of the Ontario Health Officers Association in June, 1938, and subsequently published.

V. GENERAL PUBLIC HEALTH STATISTICS—

During the year an increasing amount of statistical work has been done in co-operation with other Divisions of the Department. This type of service is one of the fundamentally important tasks of this Office. Each year this office issues two bulletins dealing with the chief causes of death. These bulletins present a review of the essential features of the mortality picture in the Province with the object of advising the administrative officers of the Department thereon. The preparation or assistance in the preparation of mortality and morbidity data together with direction in the interpretation thereof has come to be a principal function. The compilation of statistics on regional variations in mortality for certain causes of death, the after-history of patients treated in Sanatoria, mortality from diseases transmitted by raw milk, occupational and social variations in cancer mortality, are some of the many pieces of work done in this way. Further work was also done during 1938 in the preparation of statistics on the chief problems of public health concern, particularly infant mortality.

All aspects of the programme of this Division are being developed and conducted with the object of assuring an effective approach to all phases of the Department's public health and hospital programme and responsibilities.

ON THE CHIEF CAUSES OF DEATH IN ONTARIO DURING 1937

Official data for 1937 permit a commentary upon some of the essential features of the general mortality picture for Ontario during the year.

The crude death rate for 1937 showed a slight increase to 10.37 per 100,000 population over the figures for 1935 and 1936 which were 9.89 and 10.18 respectively. This increase reflects the influence of the “ageing” of the population on the *crude* death rate and, a substantial increase in deaths attributed to influenza. Data on the twenty chief causes of death are given in table I.

TABLE I
CHIEF CAUSES OF DEATH--ALL AGES
ONTARIO, 1937

Order	CAUSE OF DEATH	Int'l List Numbers	Number of Deaths	Specific Death Rate*	Percent. of Total Deaths
1.	Diseases of the Heart	90-95	7,226	194.7	18.78
2.	Cancer (all forms).....	45-53	4,527	122.0	11.77
3.	Diseases of the Arteries.....	96-99	4,036	108.7	10.49
4.	Pneumonia and Bronchitis.....	106-109	2,680	72.2	6.97
5.	Accidents.....	176-195	2,433	65.6	6.32
6.	Nephritis.....	130-132	1,946	52.4	5.06
7.	Influenza.....	11	1,659	44.7	4.31
8.	Tuberculosis (all forms)	23-32	1,315	35.4	3.42
9.	Prematurity.....	159	1,044	28.1	2.71
10.	Cerebral Haem., Embol., Thrombosis....	82	770	20.7	2.00
11.	Idiopathis Abnorm. of Bl. Pressure.....	102	713	19.2	1.85
12.	Diarrhoea, Enteritis and Dysentery.....	13, 119, 120	601	16.2	1.56
13.	Diabetes Mellitus	59	579	15.6	1.50
14.	Congenital Malformations.....	157	490	13.2	1.27
15.	Diseases of the Prostate.....	137	479	12.9	1.24
16.	Senility.....	162	439	11.8	1.14
17.	Hernia, Intestinal Obstruction.....	122	415	11.2	1.08
18.	Appendicitis.....	121	370	10.0	0.96
19.	Suicide.....	163-171	366	9.9	0.95
20.	Puerperal State.....	140-150	319	8.6	0.83
Total.....			32,407	8.73‡	84.23
All Other Causes.....			6,068	1.64‡	15.77
GRAND TOTAL.....			38,475	10.37‡	100.00

*Rates per 100,000 population. ‡Rates per 1,000 population.
Population of Ontario, 1937 (estimated), 3,711,000.

These causes contributed 84.23 per cent. of all deaths during the year. Figure 1 gives some idea of the relationship of the first twelve “causes.” Degenerative diseases of the heart, arteries and kidneys continue to play a major role in mortality. These three contributed 34.33 per cent. of all deaths during the year. At the other end of the life span, prematurity, congenital malformations, and diarrhoea and enteritis, the principal toll of which as a group occurs at ages under 1 year, contributed 5.54 per cent. of all deaths. In the sections which follow, comments are made on several of the chief causes of death which appear in table 1 and figure 1.

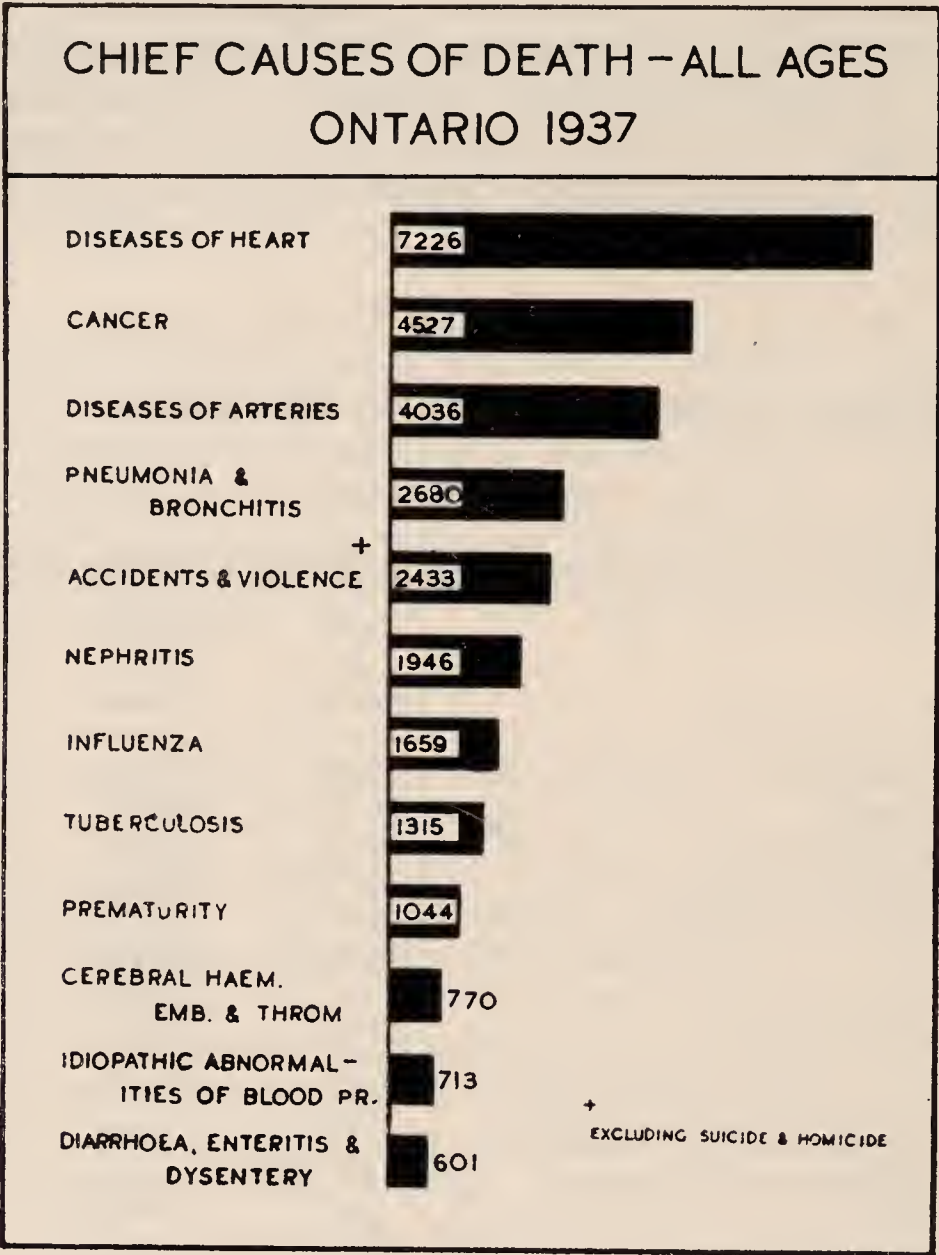


FIGURE 1

Cancer.

The volume of deaths attributed to cancer continues to rise. During 1937, 11.8 per cent. of all deaths certified were classed to cancer. Considerably more information on this problem is being brought forth as a result of statistical research (1). English studies for example have shown that there are marked variations in cancer mortality rates by site, from community to community (2). Work recently published in the decennial supplement by the British Register Office shows that cancer mortality rates exhibit a similar progressive increase as the social scale descends, *for both males and females* (3). This tends to suggest that occupational influences on male cancer mortality are of slight importance compared with environmental and economic conditions of home life. Cancer of the skin shows a similar gradient in females as in males and hence purely occupational factors may not be the sole, nor indeed perhaps the most important ones involved. The fact that 60 per cent. of all cancer deaths in Ontario occur at ages under 70 years and that one fourth of all the deaths are attributed to cancers of accessible sites, emphasizes this disease as one of significant importance in relation to the public health.

Accidents.

Accidents continue to contribute substantially to the annual death rate (4). In 1937, 2,433 deaths or 6.32 per cent. of all deaths were classed to accidents. This is a significantly lower figure than that for 1936 due to the reduction in the number of deaths attributed to excessive heat which numbered 65 in 1937 compared with 702 in 1936. Of the deaths classed to accident during 1937, 774 were attributed to motor accidents and a further 305 to accidental drowning.

The importance of motor accidents is further emphasized by the fact that there were 12,092 persons non-fatally injured in motor accidents during the year, a ratio of 16 persons injured to each death (5). A recent study published by the Dominion Bureau of Statistics shows too that a large proportion of deaths classed to accidents occur in the home (6). Scientific research, in industrial and traffic accidents at least, suggests that many accidents can be explained by physiological and psychological defects or maladjustments in the persons involved and that increasing attention is being paid to the "human factor."

Influenza.

The death rate from influenza has markedly increased since 1935 and 1936 when 958 and 722 deaths respectively were classed to this cause. In 1937, 1,659 deaths were attributed to influenza. That this increase is not spurious is borne out by the 8-fold increase in the number of reported cases of influenza during 1937, over the two preceding years. In 1937, 13,330 cases were reported to the Department, 94 per cent. of which were reported in January, February and March, and over 50 per cent. in February alone (7). The 8-fold increase in cases compared with a 2-fold increase in deaths suggests either an unusual prevalence of mild fatality or a large number of cases wrongly reported as influenza. By its nature influenza is subject to fluctuations in incidence and mortality and such have been reflected in the death records of Ontario since 1897 (8). The influenza death rate for 1937 of 44.7 per 100,000 population is the highest recorded in the Province since 1929. While variations in diagnosis may account in part for some fluctuation, such marked increase establishes definitely the presence of an unusual prevalence of a disease of significant fatality.

Pneumonia.

The death rate from pneumonia remained practically unchanged during 1937, one death in every 14 being attributed to it. The idea that pneumonia is significant as a cause of death only in infancy and old age is untenable (9). It is a leading cause of death in every age-group and at ages 1-4 years pneumonia ranks first in importance. Fifty-five per cent. of pneumonia deaths occur at ages under 65 years and 48 per cent. of lobar pneumonia deaths occur at ages 10-64 years.

Tuberculosis.

The tuberculosis death rate registered a new low in 1937 at 35.4 per 100,000 population. The decline in mortality from this cause has been gratifying and, with the extension of facilities for treatment and diagnosis, cannot but be expected to continue. The most significant recent observation is that the death rate at ages 20-29 years, formerly the highest of any age group, has been exceeded since 1934 by that for the age group 60 years and over. This is a definite gain since it has been accomplished, not by an increase in mortality at ages 60 and over, but by a persistent decline at ages 20-29 years.

Diabetes.

The diabetes death rate continues to increase (10). This persistent increase is remarkable in that it is strikingly age-limited. There has been a steady *decline* in the proportion of diabetes deaths occurring at ages under 50 years—in 1909, 48 per cent. of diabetes deaths occurred in the age group under 50 years, while in 1937 only 13.3 per cent. occurred at these ages. Conversely, while formerly over 50 per cent. of diabetes deaths fell at ages 50 years and

over, now 85 per cent. or more occur at these ages. A decline in the specific death rate from diabetes has occurred in each age-group up to 50 years and an increase in *recorded* mortality is limited particularly to the age-groups 60 and over. Increasing accuracy of diagnosis, increasing certification of diabetes at older ages, postponement of death to a later age through the use of insulin and the influence of statistical rules of preference where multiple causes are stated on the death certificate, are factors contributing to this picture. Using English data, Stocks has computed the average lengthening of life among diabetics since the introduction of insulin at $3\frac{1}{2}$ years in the gross (11). This finding was based on all deaths and is undoubtedly much lower than the figure which would be obtained if treated cases only were considered. Ontario data yields similar evidence (12).

Diarrhoea, Enteritis and Dysentery.

The death rate from diarrhoea, enteritis and dysentery increased from 12.9 per 100,000 (465 deaths) in 1935, to 15.1 (588 deaths) in 1936, and again to 16.2 (601 deaths) in 1937. This is an increase of over 20 per cent. since 1935. Fluctuations are to be expected in diseases of this nature, but the fact remains that of the deaths attributed to these causes in 1937, 411 or 68.4 per cent. occurred at ages under 2 years and 61 per cent. occurred among infants under the age of one year. That is to say, more than 10 per cent. of the infant deaths which occurred during the year were attributed to diarrhoea and enteritis. Both bacteriological and clinical studies have shown that these deaths are preventable in character (13). During the last ten years there has been an almost dramatic decline in the recorded deaths from these causes, a decline which amounts to about 50 per cent. In large municipalities the reduction has been most striking. Everywhere periodic fluctuations are recorded at intervals of 1 to 3 years, fluctuations to the extent of from 50 to 100 per cent. In Toronto, Hamilton and Windsor the death rate from diarrhoea, enteritis and dysentery under the age of 2 years has, since 1935, been the lowest ever recorded.

Maternal Deaths.

The maternal death rate remained at about the same general level during 1937, 319 such deaths occurring during the year. Of these 45 or 14 per cent. were attributed to abortion, 36 or 11 per cent. to haemorrhage, 65 or 20 per cent. to puerperal sepsis and 87 or 27 per cent. to puerperal toxæmias. In addition there were 22 deaths classed to embolism and 30 to other accidents of childbirth. The maternal death rate for 1937 was 5.2 per 1,000 live births, compared with 5.7 in 1936 and 5.0 in 1935.

CAUSES OF DEATH AT CERTAIN AGES

The principal causes of death in each of the age groups of special public health interest in infancy, childhood, adolescence and the productive period of adult life during 1937 are presented in succeeding sections of Table II. Here may be found the eight chief causes of death for a specified age group, the number of deaths classed to each and the percentage of all deaths at that age which were due to each specified cause. The two columns at the right of the table indicate the number of deaths from the specified cause which occurred at all ages during the year and the per cent. of all deaths from this cause which occurred at the specified age.

Infancy.

Deaths among infants during the first year of life remained about the same as in 1936, at 55 per 1,000 live births. Mortality under one month of age also remained at the same level—31 per 1,000 live births or over 56 per cent. of all deaths under one year. Diarrhoea, enteritis and dysentery were responsible for over ten per cent. of all infant deaths during the year and 61 per cent. of the deaths classed to this group at all ages, occurred under one year of age. Almost one-third of all deaths under one year are classed to prematurity. Data on the fundamental causes of prematurity in these cases is needed. These deaths reflect morbid factors of maternal and placental origin. Lacking a preventive approach, measures directed toward the scientific care of the premature infant have been rewarded substantially. Measures which exert an influence on the fundamental causes of prematurity, however, are the only ones from which any marked reduction may be expected.

The Pre-School Age Group.

Pneumonia ranked first at ages 1-4 years. Accidental causes ranked second, causing 146 deaths of which 45 were due to motor accidents, 26 to accidental drowning and 38 to accidental burns. The six groups—pneumonia, accidents, diarrhoea and enteritis, influenza, whooping cough and tuberculosis contributed two-thirds of all deaths at these ages. Tuberculosis fell from fourth to sixth place in 1937, being displaced by influenza and whooping cough. Diarrhoea, enteritis and dysentery ranked fourth with 8.9 per cent. of the deaths. Appendicitis appears in this age group with 30 deaths. This fact and the reduction in deaths from tuberculosis are significant changes at these ages during the year.

The School Age Group.

Accidental causes again claimed three times as many deaths as any other cause among children aged 5-14 years, being responsible for one death in every four. Eighty-eight out of the 204 deaths in this category were motor fatalities and 66 were accidental drownings. Appendicitis is the second chief cause and about one-fifth of all deaths attributed to appendicitis occurred at ages 5-14 years. A significant reduction in tuberculosis deaths occurred in 1937.

The Adolescent Period.

Accidental causes with 117 deaths ranked first again at ages 15-19 years and tuberculosis returned to second position among the chief causes as in 1935. Two deaths in every nine were deaths from accidental causes. Sixty of the 117 deaths were due to motor accidents and 30 to accidental drowning. A reduction of twenty per cent. in the tuberculosis deaths, compared with 1936, occurred at these ages.

Ages 20-49 Years.

Accidental and violent causes continued to rank first as a cause of death at ages 20-49 years. Tuberculosis remained a close second and contributed 12.0 per cent. of the deaths. It is especially significant from the public health standpoint, that 55.5 per cent. of all tuberculosis deaths occurred during this age period, that more than two-thirds occurred at ages under 50 years and four-fifths under 60 years. Diseases of the heart and cancer ranked third and fourth, respectively, each contributing more than 10 per cent. of the deaths. Deaths attributed to puerperal causes ranked sixth in this table but among females alone this group ranked third, being exceeded only by tuberculosis and cancer.

TABLE II
CHIEF CAUSES OF DEATH—CERTAIN AGE GROUPS
ONTARIO, 1937

CAUSE OF DEATH	Deaths in Age Group	Percent. of Deaths in Age Group Due to Specified Cause	Deaths Due to Specified Cause at All Ages	Percent. of Deaths Due to Specified Cause in Age Group
Age Under 1 year.....	3,382	.....	.....	.....
1. Prematurity.....	1,044	30.9	1,044	100.0
2. Congenital Malformations.....	428	12.7	490	87.3
3. Pneumonia and Bronchitis.....	391	11.7	2,680	14.6
4. Diarrhoea, Enteritis and Dysentery....	367	10.9	601	61.1
5. Injury at Birth.....	259	7.7	259	100.0
6. Dis. Pec. to Early Infancy*.....	215	6.4	215	100.0
7. Influenza.....	131	3.9	1,659	7.9
8. Congenital Debility.....	100	3.0	100	100.0
Totals for 1-8.....	2,935	87.2	7,048	41.6
Ages 1-4 years.....	872	.....	.....	.....
1. Pneumonia and Bronchitis.....	154	17.7	2,680	5.7
2. Accidents and Violence‡.....	146	16.8	2,433	6.0
3. Influenza.....	88	10.1	1,659	5.3
4. Diarrhoea, Enteritis and Dysentery....	78	8.9	601	12.8
5. Whooping Cough.....	41	4.7	104	39.4
6. Tuberculosis (all forms).....	39	4.5	1,315	3.0
7. Appendicitis.....	30	3.4	370	8.1
8. Congenital Malformations.....	26	3.0	490	5.3
Totals for 1-8.....	602	69.1	9,652	6.2
Ages 5-14 years.....	819	.....	.....	.....
1. Accidents and Violence‡.....	203	24.8	2,433	8.3
2. Appendicitis.....	69	8.4	370	19.0
3. Pneumonia and Bronchitis.....	62	7.6	2,680	2.3
4. Tuberculosis (all forms).....	55	6.7	1,315	4.2
5. Influenza.....	36	4.4	1,659	2.2
6. Acute Rheumatic Fever.....	31	3.8	192	16.1
7. Diseases of the Heart.....	18	2.2	7,226	0.2
8. Cancer (all forms).....	16	2.0	4,527	0.4
Totals for 1-8.....	490	59.9	20,402	2.4
Ages 15-19 years.....	518	.....	.....	.....
1. Accidents and Violence‡.....	117	22.6	2,433	4.8
2. Tuberculosis (all forms).....	72	13.9	1,315	5.5
3. Pneumonia and Bronchitis.....	33	6.4	2,680	1.2
4. Appendicitis.....	31	6.0	370	8.4
5. Diseases of the Heart.....	27	5.2	7,226	0.4
6. Puerperal State.....	21	4.1	319	6.6
7. Influenza.....	21	4.1	1,659	1.3
8. Acute Rheumatic Fever.....	18	3.5	192	9.4
Totals for 1-8.....	340	65.8	16,194	2.1

*Under 3 months of age.
‡Excluding suicide and homicide.

TABLE II—Continued
CHIEF CAUSES OF DEATH—CERTAIN AGE GROUPS
ONTARIO, 1937

CAUSE OF DEATH	Deaths in Age Group	Percent of Deaths in Age Group due to Specified Cause	Deaths from Specified Cause at All Ages	Percent of Total Deaths from Specified Cause in Age Group
Ages 20-49.....	6,084	.....	.....	.....
1. Accidents and Violence†.....	754	12.4	2,433	31.0
2. Tuberculosis (all forms).....	730	12.0	1,315	55.5
3. Diseases of the Heart.....	660	10.8	7,226	9.1
4. Cancer (all forms).....	649	10.7	4,527	14.3
5. Pneumonia and Bronchitis.....	415	6.8	2,680	15.5
6. Puerperal State.....	297	4.9	319	93.1
7. Nephritis.....	241	4.0	1,946	12.4
8. Appendicitis.....	129	2.1	370	34.9
Totals for 1-8.....	3,875	63.7	20,816	18.6
Ages 50-59 years.....	4,429	.....	.....	.....
1. Diseases of the Heart.....	978	22.1	7,226	13.5
2. Cancer (all forms).....	881	19.8	4,527	19.5
3. Accidents and Violence†.....	250	5.6	2,433	10.3
4. Pneumonia and Bronchitis.....	250	5.6	2,680	9.3
5. Diseases of the Arteries.....	237	5.4	4,036	5.9
6. Nephritis.....	234	5.3	1,946	12.0
7. Tuberculosis (all forms).....	177	4.0	1,315	13.5
8. Abnormalities of blood pressure.....	154	3.5	713	21.6
Totals for 1-8.....	3,161	71.3	24,876	12.7
Ages 60-69 years.....	6,631	.....	.....	.....
1. Diseases of the Heart.....	1,691	26.0	7,226	23.4
2. Cancer (all forms).....	1,198	18.1	4,527	26.5
3. Diseases of the Arteries.....	668	10.1	4,036	16.6
4. Nephritis.....	389	5.9	1,946	20.0
5. Pneumonia and Bronchitis.....	352	5.3	2,680	13.1
6. Accidents and Violence†.....	239	3.6	2,433	9.8
7. Diabetes.....	177	2.7	579	30.5
8. Abnormalities of blood pressure.....	174	2.6	713	24.4
Totals for 1-8	4,888	74.3	24,140	20.2
Ages 70 and over.....	15,722	.....	.....	.....
1. Diseases of the Heart.....	3,844	24.4	7,226	53.2
2. Diseases of the Arteries.....	3,046	19.4	4,036	75.4
3. Cancer (all forms).....	1,773	11.3	4,527	39.2
4. Pneumonia and Bronchitis.....	1,023	6.5	2,680	38.2
5. Nephritis.....	1,045	6.6	1,946	53.7
6. Accidents and Violence†.....	659	4.2	2,433	27.1
7. Cerebral Haem. and Apoplexy.....	476	3.0	770	61.8
8. Senility.....	438	2.8	439	99.8
Totals for 1-8.....	12,304	78.2	24,057	51.1

†Excluding suicide and homicide.

Ages 50 and Over.

In the age groups 50 and over, diseases of the heart, arteries, kidneys, cancer and pneumonia play an increasingly important part and little change is noted over 1936. At ages 50-59 and 60-69 years cancer contributed approximately one death in ever five.

This Comment on the mortality picture in Ontario during 1937 is intended merely to touch upon the highlights in certain age groups. Further details of interest and importance can be obtained from the detailed tables (I and II), and from the official data in the Report of the Registrar General for 1937.

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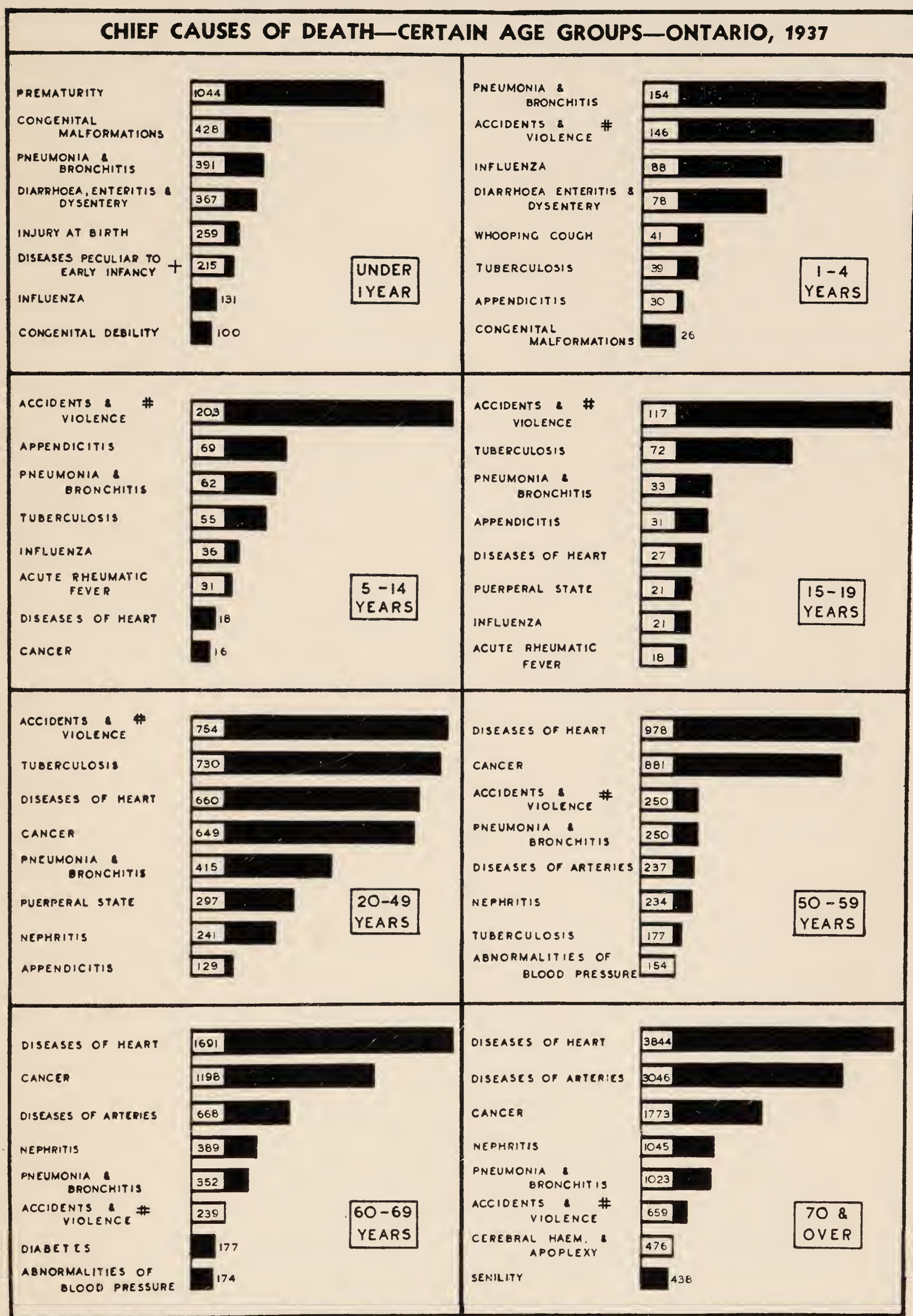


FIGURE 2

